

INTERPERSONAL AND SELF-CONCEPT CHARACTERISTICS  
OF KINDERGARTEN CHILDREN WITH PREDICTED  
READING DISABILITIES

By

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A DISSERTATION PRESENTED TO THE GRADUATE COUNCIL OF  
THE UNIVERSITY OF FLORIDA IN PARTIAL  
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF  
DOCTOR OF PHILOSOPHY

UNIVERSITY OF FLORIDA

1976

To the memory of my father

Floyd Robert Doherty

## ACKNOWLEDGMENTS

The author would like to gratefully acknowledge the assistance of her doctoral committee, most especially Paul Satz, for guidance in the completion of this dissertation research. Portions of the research in the study, namely the Developmental Predictive Battery, were supported by Grant No. MH-19415. Assistance in the collection of the data was provided by Robin Carol Alter, M.A.

Assistance in coding of the data and statistical analysis was provided by Ellen Corey Lau, Gunnar Isaacson, Janette Freil, Marjorie Titner, Jack Fletcher, Jean Holzer, Thomas Van den Abell, and Jon Schuster. Without the support of the kindergarten teachers and staff at Stephen Foster Elementary School this study could not have been completed.

Computer support was provided by the Northeast Regional Data Center (NERDC).

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Abstract of Dissertation Presented to the Graduate Council  
of the University of Florida in Partial Fulfillment  
of the Requirements for the Degree of Doctor of Philosophy

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December, 1976

Chairman: Dr. Paul Satz

Major Department: Clinical Psychology

This study concerned sociometric and self-concept measures of kindergarten children predicted to be of high risk for future reading disability. The sample consisted of 99 North Florida kindergarten children in four classrooms. A developmental test battery which consisted of eight individual tests found previously to be highly predictive of potential reading disability was administered to all sample children in the fall 1974. In the spring 1975 a sociometric measure and a measure of self-concept were administered to all children. The sociometric measure consisted of 21 questions to which a child responded with the name of another child in this class. This measure was broken down into six variables: Leadership, Aggressive Maladjustment, Withdrawn Maladjustment, Practical Intelligence, Positive Friends, and Negative Friends. The self-concept measure consisted of 40 items broken down into five variables:

General Adequacy, Peer Items, Teacher-School Items, Academic Items, and Physical Items.

In considering the Sex, Race, and predicted Risk Group of the children, it was observed that the Black children were predominantly high risk in that race was the more powerful variable in the significance of the sociometric measure. Negative variables such as Aggressive Maladjustment and Negative Friends accounted for the significance of the sociometric measure. Results of the self-concept measure were not significant for the total sample but White predicted high risk children saw themselves significantly lower in self-concept. It was also observed that the classes were not homogeneous in the distribution of predicted risk groups. Seventy-one percent of the predicted high risk children were in two of the four classes.

It is suggested that even before formal reading instruction begins, predicted high risk children are seen more negatively by their peers although in this sample, the powerful effect of race mask the effect of predicted high risk. Also, at least for White children, those in the predicted high risk group had a lower self-concept than those in the predicted low risk group. Caution is emphasized in generalizing the results of the study to other populations because of the nature of the sample and the lack of homogeneity in the classroom.



## CHAPTER I

### INTRODUCTION AND STATEMENT OF PROBLEM

Much of the research on the early detection of specific learning disabilities has focused upon pinpointing the potential problem in the specific child using the medical model of diagnosis of the potential disability and resultant treatment based upon the individual child's needs. An interesting adjunct to this focus is to view problem of specific learning disability from an interpersonal and intrapsychic vantage point. One question thus becomes: Do interpersonal relationships, such as those seen in the classroom, affect the development of potential learning disability? Studies have shown that by the third or fourth grade learning disabled children are perceived more negatively by their peers than non-learning disabled children (Bryan, 1976). The question might be asked whether these findings are indicative of the fact that by this time the disability has become obvious to the child himself and to his peers, or whether these deviances in perception by others, and possibly

self-perception is in fact a correlate of the learning disability itself and present even before formal reading instruction begins.

The kindergarten classes already tested for potential reading disability by Satz and associates (1974) offer a unique opportunity to look at children who have been measured for high risk status but who have not yet been labeled in any way by teachers, peers, or themselves as learning disabled. Although reading readiness skills have been introduced in kindergarten, these potentially "high risk" children have not been formally "labeled" or "diagnosed" as learning disabled. It seems very worthwhile to ask the following questions: "Are potentially 'high risk' children perceived more negatively than 'low risk' children by their peers even at the kindergarten level?" "Is the level of self-esteem significantly lower for the 'high risk' children than for their 'low risk' classmates?" If these questions are found to be answered affirmatively, the results would indicate that, even before a formalized reading curriculum was introduced, the negative or deviant characteristics observed in older learning disabled children is in fact evident even at the kindergarten level. If these questions are answered negatively and the results show that there are no differences in peer ratings or self-esteem measures between "high risk" and

"low risk" children, the results would tend to support the view that the negatively observed characteristics seen later in elementary school develop following the manifestation of learning disability in the classroom. It appears that the results of sociometric and self-esteem measures combined with the available data already collected on this particular group of children may offer valuable information concerning the social milieu and feelings of self-esteem of potentially "high risk" children. Obviously social interaction between children in the classroom and the level of self-esteem of young children plays an important part in future levels of academic achievement and hopefully the interplay of sociometric and self-esteem data may help to contribute to our understanding of the potentially learning disabled child.

## CHAPTER II

### REVIEW OF THE LITERATURE

One of the major difficulties in a meaningful review of the literature in terms of etiology, diagnosis, and treatment of the learning disabled child comes from the lack of agreement on definition. From the original focus upon adult aphasia, a progression of terms has been offered to define a "syndrome" which generally appears to be characterized by two separate but related elements; namely, the inability to read at a level commensurate with potential intellectual ability and a cluster of behaviors characterized by hyperactivity, distractibility, impulsivity, excitability, and antisocial behavior (Cantwell, 1975).

There are other definitions offered but most do not require positive evidence of the presence of cerebral dysfunction. Along with the inability to learn, given normal intellectual potential, are often described a cluster of behaviors such as hyperactivity, emotional lability, impulsivity, distractibility, and perseveration (Strauss & Lehtinen, 1947), poorly defined cerebral dominance (Orton,

1928), central processing dysfunction (Chalfant & Scheffelin, 1969), poor attention and poor impulse control (Douglas, 1974), and electroencephalograph (EEG) abnormalities (Gross & Wilson, 1974; Clements & Peters, 1967).

Most of the definitions of learning disabilities/minimal brain dysfunction (MBD) exclude children whose learning problems are primarily due to gross neurological handicaps, emotional disturbance or socioeconomic disadvantage. A recent federal definition states

The term "children with specific learning disabilities" means those children who have a disorder in one or more of the basic psychological processes involved in understanding or using language, spoken or written, which disorder may manifest itself in imperfect ability to listen, think, speak, read, write, spell or do mathematical calculations. Such disorders include such conditions as perceptual handicaps, brain injury, minimal brain dysfunction, dyslexia, and developmental aphasia. This term does not include children who have learning problems which are primarily the result of visual, hearing, or motor handicaps, or mental retardation, or emotional disturbance or of environmental disadvantage. (Schain, 1972)

From Henshelwood's 19th century "congenital word blindness", terms such as "strephosymbolia" (Orton, 1928), "brain-injured child" (Strauss & Lehtinen, 1947), "Strass syndrome" (Stevens & Birch, 1967), "minimal brain dysfunction" (Clements, 1966), and "learning disability" (Kirk, 1962) have been in vogue.

Obviously children who show some of the symptoms just described do not show them all. This situation has resulted

in articles such as one by Gomez (1967) entitled "Minimal Cerebral Dysfunction--Maximal Cerebral Confusion" in which he suggests discarding an all-inclusive term and instead substituting subclassifications such as minor motor disorders, hyperkinetic behavior, communication disorders, unestablished hand dominance, perceptual disorders, mental deficiency, and convulsive disorders.

As Cruickshank (1967) points out,

If a child happens to live in the state of Michigan, educators refer to him as a "perceptually disabled child." If the child is a resident of California, his education may be provided if he is classified as an "educationally handicapped" or "neurologically handicapped" child. In Bucks County, Pennsylvania, he will be placed in a class for children with "language disorders." If he moves from California to New York State, he will change from an "educationally handicapped child" to a "brain-injured child." On the other hand, if he moves from Michigan to Montgomery County, Maryland, he will stop being a "perceptually disabled child" and become a "child with specific learning disabilities." (p. 3)

The preceding is quoted mainly to point out the confusion in labeling within the educational community. The situation is no different outside the educational milieu where various terms are presently used. In 1963 a conference sponsored jointly by the USPH Service Division of Chronic Diseases and the National Easter Seal Society for Crippled Children and Adults adopted the term "minimal brain dysfunction" and "listed no less than 99 signs and symptoms exhibited by children in this category. It, too, recommended

that an effort be made to identify more homogeneous sub-categories" (Strother, 1973, p. 11). Cantwell (1975) prefers the "hyperactive child syndrome" which only describes behaviors and makes no implications to etiology. It appears that depending upon one's orientation a particular term will be preferred, with medically oriented researchers preferring the "MDB" designation and educators preferring "learning disabilities." This problem of definition points out two very real aspects of this area: (1) the definition of the researcher may reflect his particular orientation and thus hinder in some ways his communication with others in the general field and (2) the problem of definition may well point to the fact that we are dealing with a very heterogeneous group of children which cannot, in fact, be grouped under one broad category.

Historically, the concept of specific learning disability, most especially difficulties in reading, has come from two major lines of investigation. One concerns the study of acquired disability due to trauma to the developed brain by scientists such as Broca, Wernicke, Jackson (Penfield & Roberts, 1959), and more recently Goldstein (1948). The problem of specific learning disability which appears to have had its precursors since birth or early childhood, with no known cerebral accident, was first discussed most likely by British ophthalmologists such as

Hinshelwood (1895, quoted in Critchley, 1970, p. 6) who first described "congenital word blindness" (in reference to adults) and to Morgan (1896, quoted in Thompson, 1966, p. 15) who described a boy who was unable to read despite normal vision and intelligence. Claiborne, an ophthalmologist (in Thompson, 1966, p. 17), was a pioneer in this field in the United States. In 1906 he suggested the word "amblyopia," meaning blunt or dim vision. Although ophthalmologists were some of the first to discuss this problem, most were in agreement that problems in reading had nothing to do with visual deficiency.

The other major line of investigation stems from the work of early educators and psychologists. Gray (1921) postulated social, congenital, and psychological causation in reading problems. In 1918 Hollingworth (cited in Thompson, 1966, p. 23) felt that problems in spelling simply represented the lower end of the normal spelling curve, and rejected the concept of brain lesion.

Samuel T. Orton, a psychiatrist and neurologist, in the 1920's brought together the concepts of physicians, educators, and psychologists to the area of language disabilities. Following World War I mental health professionals moved out of the mental hospital and into the community. As child guidance centers developed, more and more children were seen who had problems in language



acquisition. Based upon his observation of children with learning problems seen by teams from the Iowa State Psychopathic Hospital, Orton (1928) coined the word "strephosymbolia" (twisted symbols) and focused upon hereditary components and problems in cerebral dominance. The "Orton Credo" (quoted in Thompson, 1966, p. 35) served as an impetus for much research and speculation as to the etiology of language disorders:

The view presented here that many of the delays and defects in development of the language function may arise from a deviation in the problem of establishing unilateral brain superiority in individual areas, while taking account of the hereditary facts, brings with it the conviction that such disorders should respond to specific training if we prove ourselves clever enough to devise the proper training methods to meet the needs of each particular case.

Following Orton's death in 1949, The Orton Society was founded with a bulletin published annually by reading specialists. Students of Orton, such as Lauretta Bender, have become prominent in extending the concepts of Gestalt psychologists such as Wertheimer, Koffka, Kohler, and Lenvin to the area of specific disability and has carried on Orton's concept of "developmental lag." More recently, professionals in many areas of childhood disorders have entered the field of learning disabilities.

This brief historical consideration would not be complete without citing the work of Alfred Stauss whose

research and observation of children showing specific disabilities led to the term "brain-injured child" or "Strauss Syndrome." Strauss and Lehtinen in 1974 not only considered etiology but also developed remedial techniques which resulted in the foundation of the Cove Schools in Racine, Wisconsin, and Evanston, Illinois.

The concept of a specific learning disorder basically assumes that the child's performance is not commensurate with his intellectual potential. The incidence of this disorder is not agreed upon by investigators. Estimates range from 5 to 30% depending upon the criteria used for diagnosis.

There are as many suggestions as to the etiology of the learning disabled/MBD/hyperactive child as there are definitions of the syndrome. The theories of causation fall mainly into five categories: neurological deficit or dysfunction, maturational immaturity, social variables, psychological variables, and educational variables.

Medically oriented investigators are convinced of the organic etiology of the syndrome but there are differences of opinion as to the mechanisms involved. Wender (1971) hypothesizes that the MBD child demonstrates an increase in arousal which results in an increased activity level, a decreased ability to communicate and a decreased ability for positive and negative affect. Wender and others

postulate that these behaviors are secondary to disorders of monoamine metabolism. This theoretical construct is further elaborated by Silver (1971) who suggests that norepinephrine is the key neurotransmitter which is deficient in the MBD child and this deficiency results primarily in a physiological dysfunction of the ascending reticular activating system and secondarily of the limbic system. This proposed etiology is derived from the observation that the clinical symptoms of the MBD child are often reduced by the use of drugs which produce a relative increase in the available norepinephrine in the central nervous system. Based upon EEG studies, Satterfield (1975) presents the hypothesis that there are low central nervous system arousal systems in the hyperactive child coupled with insufficient central nervous system inhibition. These theories emphasize the process of brain dysfunction rather than brain damage. However, investigators such as Benton (1973), following the lines of the original hypothesis of Strauss, consider MBD to be a result of brain damage and further that it is caused by a major, not minimal, cerebral abnormality.

Many investigators point out the existence of familial effect in MBD, and postulate a genetic component in the syndrome. Safer (1973), in reviewing medical and social service charts of siblings and half-siblings of 17 children

with MBD found that, compared to the half-siblings, the full siblings of the MBD index children had a significantly greater occurrence of short attention span, antisocial behavior and other MBD symptoms. Bakwin (1973) studied 338 pairs of like-sex twins ranging in age from 8 to 18 years. Ninety-seven children were found to have reading disability. There was a high degree of concordance for reading in monozygotic twins, almost three times as great as in dizygotic twins. Bakwin proposes that these findings strongly support the view of a genetic factor in reading disability, as these twins all came from middle-income families and the mean birth weight of the readers and non-readers was the same.

The concept of "maturational lag" has been proposed by Kinsbourne (1973) and Satz and Sparrow (1970). Kinsbourne postulates that when cortical control of attention is slow to develop, the child shows behaviors which are considered inappropriate. "Reading readiness implies that certain ways of processing information have become available. Prerequisite is the ability to discriminate and retain in memory visual form, orientation, and sequence, as well as to associate these occurrence with words" (Kinsbourne, 1973, p. 271). Satz postulates that reading disability reflects a lag in the maturation of the brain which delays differentially those skills which are in

primary ascendancy at certain chronological ages. A more detailed discussion of this hypothesis will be presented in the section on predictive studies.

Anthony (1973) criticizes the "organic" models and postulates a psychodynamic model of the MBD child, focusing primarily on a persisting confusion between the "self" and the "nonself." He feels that most investigators in this area tend to look at the "organic" child "from the outside," as if they possessed little internal life. He comments, "A warning has already been issued to psychodynamic and developmental modelists not to forget the brain, but there is an equal need to add a warning to the biologically minded not to forget the mind, since it has an important part to play in elucidating some of the perplexing manifestations of brain dysfunctioning" (p. 59). In the psychogenic mode, Miller and Westman (1964) studied 18 boys in psychiatric treatment, all of whom were in the normal range of intelligence and were at least two years retarded in reading. Observation of the family relationships led them to conclude that the reading retardation of the son was an essential ingredient in holding an unstable family together, and that in some cases "some members react to improved reading with emotional disturbances, and the entire family responds as it would to a major emergency" (p. 71). Thus,

in these cases the reading disability was perceived as an adaptive behavior on the part of the child in holding the family together.

The social or socioeconomic focus upon the etiology of learning disabilities ranges from the view of Alberman (1973) who proposes that knowledge of an infant's socioeconomic status at birth is the single best predictor of later learning problems to the view of many that socioeconomic factors contribute to the syndrome. These factors and the educational factors will be discussed more fully in the discussion of the social milieu of the learning disabled child.

It is evident that investigators have different orientations as to the primary etiological considerations which make up this cluster of behaviors we label the MBD/learning disabled/hyperactive child. This sometimes leads to confusion. On the other hand, the tremendous amount of effort put into the attempt to explain the etiology and/or etiologies of this cluster of behaviors indicates its importance, not only for the understanding of the problems of a specific child or a specific group of children, but also to further understand the basic functioning of the central nervous system.

Satz and associates (1970, 1973, 1974) postulate also that specific reading disability reflects a lag in the

maturation of the brain which delays differentially those skills which are in primary ascendancy at different chronological ages. As a result those skills which during childhood develop ontogenetically earlier (e.g., visual-perceptual and cross-modal sensory integration) are more likely to be delayed in younger children who are maturationally immature. Those skills which during childhood have a later or slower rate of development (e.g., language and formal operations) are more likely to be delayed in older children who are maturationally immature. Based upon this postulation, Satz and associates predicted that those children, during pre-school, who are delayed developmentally in skills which are in primary ascendancy at this stage (visual-perceptual and cross-modal sensory integration) will eventually fail in acquiring reading proficiency. Following this postulation, Satz and associates developed a battery of 16 tests and administered them individually to 497 White boys at the beginning of kindergarten in 1970. This population represented virtually all of the White male kindergarten population (96%) in Alachua County, Florida, in 1970. In a two-year follow-up at the end of Grade 1, independent reading measures were obtained for 95% of the boys. On this basis the boys were classified into four dichotomous reading groups: Severe disability, Mild disability, Average reader, and Superior reader. The developmental tests given

in 1970 correctly predicted 84.4% into four discrete reading groups. For valid positive, the tests correctly predicted all of the 18 Severe cases ( $V_p = 100\%$ ) and 39 of the 55 Mild cases ( $V_p = 71\%$ ). For valid negatives, the tests correctly identified 284 of the 339 Average readers ( $V_n = 84\%$ ) and 58 of the 61 Superior readers ( $V_n = 95\%$ ). The predictive accuracy was thus largely confined to the extreme reading groups with overlap error largely confined to the Mildly disabled and Average reading groups. The tests accurately predicted 84.4% of the standardization population.

In a third-year follow-up, two different methods of reading assessment were obtained at the end of Grade 2. The incidence of reading disability had increased markedly, a three-fold increase in the frequency of Severe cases from the year before. The tests administered in kindergarten correctly identified 89% of the Severe cases, 71% of the Mild cases, 73% of the Average readers, and 94% of the Superior readers, and overall the tests correctly predicted 78% of the population. In a fourth-year follow-up, the tests correctly identified 91% of the Severe cases, 69% of the Mild cases, 70% of the Average readers, and 94% of the Superior readers.

A cross-validation study was conducted by Satz and Friel (1974) on 181 White males who began kindergarten in



1971 and who represented the total population of White kindergarten boys enrolled in five of the largest schools in Alachua County. This sample was followed for three years until the end of Grade 2. The tests correctly predicted 89% of the Severe cases, 36% of the Mild cases, 70% of the Average readers, and 93% of the Superior readers. This predictive accuracy lends convincing support to the intrinsic validity of the tests. A step-wise regression analysis was computed each year to determine the predictor variables in terms of their criterion discrimination. The Finger Localization test, Alphabet Recitation test, and Recognition-Discrimination test (identifying a geometric stimulus design among a group of four figures) were the most accurate with cumulative "hit" frequencies totaling 77%. In the third year follow-up, it was found that an abbreviated sample of the 19 tests yielded virtually the same predictive accuracy as the full battery. Selection of this abbreviated battery was based upon empirical evaluation of the highest ranking tests in each of the step-wise regression analyses across the years.

de Hirsch, Jansky, and Langford (1966) developed a battery of tests reflecting perceptuomotor and linguistic competence to predict later reading disability. Thirty-seven tests were administered to 30 boys and 23 girls of

kindergarten age. Forty percent were Black and the sample was selected from children born between September 1, 1955, and June 30, 1956, who (1) came from homes where English was the predominant language, (2) Intelligence Quotient was between 84 and 116, (3) presented no significant sensory deficits, and (4) showed no signs of psychopathology. The children were considered to be predominantly lower middle class. At the end of Grade 1, all children were tested in writing and reading. At the end of Grade 2, a writing test, reading tests, a spelling test, and four tests from the original kindergarten battery were administered. At this time de Hirsch et al. (1966) found that 19 of the 37 kindergarten tests were significantly related to the Overall Reading Performance Index (ORP). None of the background variables pertaining to family history or verbal stimulation were significant. When boys' and girls' scores were correlated separately, it was found that the overwhelming majority of tests were much better predictors for girls. Eleven other kindergarten tests were better predictors of reading achievement in Grade 2 than was IQ. Positively associated with subsequent reading scores were hyperactive, distractable, and disinhibited behavior, pegboard speed, grapho-motor ability, human figure drawing, Bender-Gestalt Test, oral language tests, expressive language tests, and reading readiness tests. A predictive index

was compiled using 10 tests which met the following criteria: (1) statistically significant levels of correlation with the ORP Index and Metropolitan Spelling Test at the end of second grade, (2) each test would show a score distribution-free of characteristics such as excessive skewness, (3) each test would differentiate clearly between average or better readers and spellers and below-average or poor readers and spellers. The predictive index correctly identified 10 of 11 children (91%) who failed reading or spelling tests at the end of second grade. However, the Index also picked up four "false positive."

It seems that in order to increase the chances of identifying virtually all failure children, it is necessary to throw out a large net, as it were, one which will inevitably pick up some adequate readers. Such an approach is, of course, consistent with public health practices which provide preventive measures for large populations in order to eliminate the possibility of overloading potential risks. (de Hirsch et al., 1966, p. 42)

In describing the failing readers they observe that it was not failure on any single task that distinguished the failing readers from other subjects, but rather the accumulation of deficits. To them, this lends support to the maturational lag hypothesis.

Follow-up studies in this area are scarce due to the difficulties of differential diagnosis and the fairly recent wide interest in this area. One of the most frequently quoted studies is that of Menkes, Rowe, and Menkes (1967)

a long-term, follow-up study of children diagnosed retrospectively as falling into the MBD syndrome. Eighteen cases were selected from a child psychiatry clinic with presenting symptoms of hyperactivity, short attention span, seizure-free, IQ over 70, and indication of neurological abnormalities such as poor coordination, speech impairment or visual-motor dysfunction. Information was gathered on 14 patients between 14 and 27 years later. Neurologic exams showed definite abnormalities in eight subjects, suspicious findings in two and normal in two. Hyperactivity had disappeared in eight patients between ages 8 and 21 but was still present in two cases, aged 21 and 23 years. Four were institutionalized as psychotic, two were retarded, eight were self-supporting. All but one of the subjects who were self-supporting had IQ's over 90. There appeared to be no correlation between the early home environment ("favorable" or "unfavorable") and general outcome. As the authors are quick to point out, their sample is small and the study was done retrospectively at a time when this "syndrome" had not been clearly delineated.

Rawson (1968) studied a population of all 56 boys who attended a small private elementary school for at least three years between 1930-1947. All 56 boys were ranked on a scale measuring initial failure in learning to read,

poor language achievement, persistence of spelling problems, speech delays, poor penmanship, poor verbal formulation, auditory, visual perception and memory problems, and lateral dominance confusion. The lowest 20 in the ranking were considered "dyslexic" (10 of the lowest 12 considered severely dyslexic had been diagnosed "specific language disability" elsewhere). Intensive remedial reading treatment was given during their elementary school years. Socioeconomic status (SES) was very high and the average IQ of the 56 boys was 130. There was a significance of .02 between the IQ's of the "dyslexic" boys and the superior readers. Follow-up was done in 1964-65 and information was obtained on all 56 boys. The mean age was 33.4 years, SD 3.5 years. All were high school graduates and 48 of 56 had baccalaureate degrees. Interestingly, the mean post-high school years of college for the high, medium, and low language groups was 5.5, 5.69, and 6.02 years, respectively. Of the 20 "dyslexic" boys, two were not college graduates, four had bachelor's degrees, four had one year of graduate study, one had a law degree, one had a graduate degree in divinity, three were doctoral candidates, five had doctorates. Rawson (1968) speculates that perhaps a disability when not insurmountable might spur one on to higher achievement (p. 76). There was no significant difference in SES between the high- and low-language facility group. In childhood the mean IQ

of the "nondyslexic" differed from the "dyslexic" by 21.9 points, but in terms of adult matched comparisons the SES and educational achievement were not significant. Rawson (1968) cites an interesting comparison between two boys (one "dyslexic," one "nondyslexic") who were "matched" as adults. With undergraduate degrees from Swarthmore and Haverford and graduate degrees from Yale and Harvard, they were originally 46 IQ points different in childhood. The results of Rawson's study, although very positive in the possible potential for dyslexics, must be considered carefully. In a small, homogeneous population of high SES, high motivation on the part of parents, teachers, and students, and the exceptionally high IQ of the population, we must be careful in generalizing to any other population. Also, because of the orientation towards individual and specialized reading "remediation" it may well be that many of these "dyslexic" boys would not be considered "dyslexic" in the general population. Also, because of the rank-ordering technique, somebody had to be "dyslexic" whether or not they would be considered so elsewhere.

Weiss, Minde, Werry, Douglas, and Nemeth (1971) followed 64 hyperactive children (4 girls, 60 boys) four to six years after initial referral. None initially had evidence of major brain damage or psychosis and had WISC IQ's of over 85. In general, the cluster of symptoms of

distractibility, hyperactivity, aggressivity, and excitability had decreased but they were considered more disturbed than a normal control group. At least one-fourth showed antisocial behavior.

Dykman, Peters, and Ackerman (1973) report a follow-up study on 82 white boys ranging in age from 8 to 8 years, 11 months, diagnosed learning disabled in 1967-68. At that time, they were contrasted with 34 normal achievers. This study, unlike Menkes et al. (1967), represented a planned follow-up of a previously selected group of laboratory research subjects who were contrasted with normal achievers who served as controls in the original study. At age 14, the average learning disabled child was inferior to controls in Full Scale IQ (WISC) and Verbal IQ. Initially controls had been superior only in Verbal IQ. The LD (learning disabled) subjects were several years behind controls in reading, spelling, and arithmetic; however, they had learned to read, spell, and compute. The LD subjects demonstrated a higher incidence of personal problems as measured by the Minnesota Counseling Inventory. However, only one scale (reality separates) the groups at the .05 confidence level. On a self-rating form the scale did not show a significant difference between cases and controls for global scores. The LD children had made progress in basic school skills but still remained behind the controls in all areas.

Mendelson, Johnson, and Stewart (1971) interviewed mothers of 83 children between the ages of 12 and 16 years who had been previously diagnosed as hyperactive. Fifty-five percent were judged to be improved with 35% felt to be unchanged or worse. Seventy-five percent of the children were still judged by the mothers to be hyperactive, distractible, impulsive, and irritable. Antisocial behavior was observed with nearly 60% having some contact with the police. Sixty percent were considered to be a discipline problem by teachers and nearly half were experiencing depressive symptoms. It must be kept in mind that there was no control group for this sample and, in the selection of the sample, a primary diagnosis of "reading disability" resulted in exclusion from the study.

The child exists in a social milieu. He is influenced in his behavior by how he interacts with his environment and how he perceives himself as an autonomous individual. The development of a good self-concept and a high level of self-esteem is essential for the child to possess in order to make the best use of his cognitive and perceptual potential.

The child is a total organization and . . . although we may divide him up for the convenience of study, all of our categorizations are artificial constructs. The old progressive education slogan of the "whole child" emerges in new fashion as we reintegrate inner and outer, knowing and feeling, and recognize that the child's behavior always



reflects his unique combination of all these factors operating in relation to a specific situation.  
(Gordon, 1973, p. 13)

In a five-year follow-up Weiss et al. (1971) found that children initially diagnosed hyperactive were still chronically underachieving and manifested emotional immaturity, inability to maintain goals, poor self-image, and feelings of hopelessness. Bateman (1973) reasons that for the educator, the question should be, "What is it that the environment has so far failed to teach this child?", rather than focusing upon something deviant or pathological in the child.

Obviously, although early detection of potential learning disability and early remediation of an academic nature is important, the total effect of the learning disabled child's impact on the environment (family and school) and the impact of the environment on the child must be considered. Henderson, Long, and Ziller (1965) found that reading disabled children showed a high degree of dependency. Bryan and Wheeler (1972) found that learning disabled children spend significantly less time than normal children in task-oriented behavior but both groups interact with teachers and peers about the same amount of time. Interestingly enough, they found that in both groups there was no reinforcement (positive or negative) from the teacher. It was suggested that since the teachers knew the identity

of the experimental and control children, perhaps they simply left the children alone during the observation period.

In a later study, Bryan (1974a) found that learning disabled children spent significantly less time in task-oriented behavior ( $p < .002$ ) and more time in nontask-oriented behavior ( $p < .002$ ) than average achievers. Learning disabled children engaged in less attending behaviors but did not differ significantly from comparison children in time spent interacting with teachers and peers. There were some highly significant differences between the groups in the pattern of interactions with peers and teachers. The teacher was almost three times as likely to respond to verbal initiations of comparison subjects than she was to the learning disabled child. Learning disabled children were more likely to be ignored by peers than were comparison children. Bryan (1974b) also conducted a study determining peer popularity of children classified as learning disabled. She administered two sociometric techniques to 1,430 children in the third, fourth, and fifth grades in a total of 65 classrooms which included at least one learning disabled child. She found that the social status of learning disabled children, depending upon their race and sex, was significantly different from that of the non-disabled children. Learning disabled children, particularly

White children or female children, are not accepted by their peers. Bryan offered several hypotheses for this rejection. It is known that popularity is correlated with intelligence and she found that her learning disabled children did score lower on achievement tests. However, she does not find this explanation satisfactory because the Black learning disabled children achieved, on the average, much lower scores on both math and reading tests, but they were not the most rejected or least accepted of the groups. Rather, it was the White learning disabled children, who scored higher on both these tests, who were the most rejected by peers. Bryan also considered the possibility that the learning disabled child suffers some stigma resulting from being labeled a special educational problem. But Black and White learning disabled children were equally "labeled" by school personnel and yet were not viewed in the same manner by classmates. Bryan suggests that perhaps girls are expected to perform academically better than boys in the elementary grades and therefore it is possible that the rejection of the learning disabled girls represents a greater deviation from the norms of performance by these girls than similar performance by boys. Along the same line of thought, it might be hypothesized that children also have greater expectancies for school performance by White than by Black children and therefore

respond more negatively to White children's lowered academic performance than to the failures of Black children. Bryan also suggests that the factors which lead a child to have a learning disability might also affect the child's social learning. Perhaps deficits in attention, language, or perception might hinder the child in detecting critical cues or making inferences about people just as they appear to hinder the child in acquiring academic information. "One would infer from such findings that there is a need for educational programs which have social/affective components as well as cognitive/achievement goals" (Bryan, 1974b).

In a replication study Bryan (1976) readministered her sociometric scale to 20 fourth- and fifth-grade classrooms in which 25 of her original learning disabled students were enrolled. Because White learning disabled children had been more rejected than Black learning disabled children, only White learning disabled children were used in the analysis. Bryan's original findings were replicated in that learning disabled children were more likely to be rejected and less likely to be accepted by peers. One year later their social status had not changed. She found that children who tend to be popular or rejected maintain their social status even though their classmates change. Bryan states, "We think that the confirmation of findings in this

replication of a study of rejection learning disabled children indicates the need to think of social relationships as much as we think about reading, writing and spelling" (p. 310).

Keogh, Tchir, and Windeguth-Behn (1974) found that kindergarten and primary grade teachers were in overall agreement as to risk signs of the learning disabled and the educable mentally retarded. They perceived differences between the two groups; potential educationally handicapped children tended to be viewed negatively, as disruptive personality and behavior problems. "Whereas EMR children were defined as intellectual or educational problems, EH children were identified in terms of behavior" (p. 372).

Keogh continues, "It may be that EH children were perceived more negatively than were EMR children because almost all teachers have had experience with learning-problem, disruptive children who seemingly have intellectual ability to succeed. These children are particularly challenging and frustrating to teachers" (p. 372). The teachers interviewed by Keogh et al. came from two school districts which differed markedly in SES. Teachers in low SES schools had much more familiarity with EMR children and some were unsure as to the meaning of the "educationally handicapped" label. "The finding, that teachers in low SES schools were

more familiar with pupil referral as EMR than EH, supports the observation that the low SES child is more likely to be placed in EMR than EH classrooms" (p. 372).

Glick (1972) compared two groups of third-grade children, one performing below and the other at or above the expected reading norm on measures taken at the beginning of third grade. Data were obtained at the beginning and end of third grade on general and academic self-concepts, attitudes towards school, perceived parent behavior and classroom peer relationships. Glick found that, in general, poor male readers incurred negative consequences while few social-emotional benefits accrue for good reading males. Females, in contrast, obtain social-emotional benefits from being good readers but incur few negative consequences if they are poor readers.

Larsen, Parker, and Jorjorian (1973) studied 60 third- and fourth-grade children, half having been diagnosed as learning disabled, half as normal peers controlled by sex, ethnic origin, grade level, age, and intelligence. They studied self-concept of the children using items from Coopersmith's Self-Concept Inventory and each child made two sorts, one for his "real self" and one for his "ideal self." Students with learning problems demonstrated significantly greater ( $< .05$ ) discrepancies in real-ideal sorts than normal subjects. Stawar and Lamp (1974) used

an instrument designed to measure the relative strengths of impulse, ego, and superego functioning to study 40 learning disabled boys and 20 controls to test the hypothesis that learning disabled children manifest higher levels of impulsivity and lower levels of ego functioning than normals. Of eight comparisons made in regard to ego and impulse score means, all were in the predicted direction, with four being statistically significant ( $p < .05$ ).

Although most studies have dealt with the school situation of the learning disabled child, Goldman and Barclay (1974) studied maternal attitudes of mothers of children with learning disabilities. It should be noted that the "control" group in this study was not a matched control, but simply the norms of the test used (Parental Attitude Research Instrument). The 38 learning disabled children had an average age of 10.9 years and an average WISC IQ of 105.97, with Verbal skills being higher than Performance skills. The two groups of mothers differed significantly on the scales of Strictness, Equalitarianism, Comradship and Sharing, Suppression of Sexuality, Encouraging Verbalization, and Approval of Activity with factors ranging from the .05 to the .001 level of significance. The authors suggest that mothers of retarded readers may have a tendency to either discourage or at least not foster verbal fluency of their children and that these mothers

tend to minimize communication and provide little opportunity for real give and take in their relationships with their children.

It has been noted previously that there is a preponderance of males to females who have learning disabilities, particularly reading problems. The ratio of approximately four boys to one girl seems to hold up over varied populations but some researchers have begun to challenge the conception of a slower developmental rate for boys as a cause of reading disability. The concept of the school as being feminine-oriented and feminine-reinforced has suggested that our society does not reinforce boys for reading ability. Mazurkiewicz (1960) administered an inventory designed to elicit information about how fathers and sons vary in their classification of reading as a mostly masculine or mostly feminine activity. Three hundred seventy-four eleventh-grade boys were given the inventory and results were available for 157 father-son pairs. The inventory listed 41 various activities ("Sewing," "Mountain Climbing," "Singing," "Reading") and the subject was asked to label the activity as "Mostly Masculine Activity" or "Mostly Feminine Activity." Reading was rated "Mostly Feminine" by 80.9% of the sons and 72% of the fathers. Boys whose reading level was below average did not significantly differ in their response to "Reading" as



feminine when compared to boys whose reading level was average or above average. Mazurkiewicz suggests that males' perception of reading is more related to societal norms than to individual reading abilities. Kagan (1964) taught 240 second-grade and 65 third-grade children three different nonsense syllables to represent the concepts "masculine," "feminine," and "farm." The children were then shown 19 new pictures and asked to apply the most appropriate nonsense syllable. Pictures of a blackboard, book, page of arithmetic, and school desk were labeled feminine more frequently than masculine by second-grade subjects ( $p < .05$ ) with effects more pronounced for girls. Interestingly, "pencil" and "map" were labeled masculine more frequently than feminine by both sexes ( $p < .01$ ). Kagan suggests that the masculine labeling of the map is

probably due to the fact that the picture was a large map of the world, one that is often associated with astronauts, pilots, or navigators. Thus, this picture was linked with masculine vocations. The masculine labeling of the pencil is more puzzling. The post hoc interpretation that is offered is similar to that suggested for the map. The pencil illustrated was long, had an eraser, and resembled the type of pencil used by grocers and merchants--adults who are typically males. (p. 1055)

Kagan adds in a footnote that "Many colleagues insist that the phallic form of the pencil was responsible for its masculine classification" (p. 1055). Kagan states further,

"It is not unreasonable to argue that the disproportionate ratio of boys to girls with academic difficulties during their first four years of school is due, in part, to the young boy's categorization of school as a relatively feminine activity, and, therefore, not appropriate to his sex role" (p. 1056).

These attempts to study more carefully the etiology of sex differences in reading resulted from the observation that girls perform better than boys in the elementary grades. As early as 1909, Ayres concluded that schools were geared more to the needs of girls than of boys. Anderson et al. (1956) found that even in a very bright population (Mean IQ = 120), many children did not learn to read until second grade. This is especially true of boys: 33.8% of the boys were in second grade when they learned to read whereas 52% of the girls were in first grade when they learned to read. Anderson et al. (1956) found that the earlier the age of learning to read, the higher the final average. However, they also noted that many children delayed in learning to read were not necessarily condemned to inferior status. Gates (1961), in an often quoted survey, evaluated 13,114 students in grades two through eight. At all levels, girls surpassed boys in Speed, Vocabulary, and Comprehension. Thus Gates rejects the explanation of early maturation on the part of the girls,

saying that girls maintain their reading advantage throughout the junior high school level. Samuels (1943) had previously observed the same superiority of girls over boys in a sample of 216 boys and 237 girls in grades one through five. Balow (1963) hypothesized that differences in reading achievement in the first grade are the result of the greater educational readiness of girls and when readiness is held constant, sex differences in reading achievement are not found. In evaluating 151 boys and 151 girls at the beginning of first grade with the Gates Reading Readiness test and later measuring intelligence and reading achievement, Balow found that if readiness was held constant, sex differences in achievement disappeared or became too small to be significant, although, in an overall analysis, girl's reading achievement was significantly higher than boy's. Balow found in his test analysis that the ability to see similarities and differences in words accounted for the differences in reading achievement and as a result concluded that "educational factors," not "maturational factors," accounted for sex differences. Rubin and Balow (1968) tested 638 children prior to entrance in kindergarten and found prekindergarten girls to score significantly higher on the Metropolitan Readiness Tests (MRT) on all subtests with the exception of Word Meaning. However, they found no significant sex differences on the

Illinois Test of Psycholinguistic Abilities (ITPA). Five hundred seventy children were tested using these measures prior to first grade and, at that level, girls scored significantly higher than boys on only two subtests of the MRT, Matching and Alphabet (at the .01 level of significance) and on Total Raw Score where the difference was significant at the .05 level. Again, there were no significant sex differences on the ITPA at the pre-first-grade level. Rubin and Balow feel that their data do not support the idea that kindergarten exacerbates differences in school readiness skills by favoring girls over boys.

On the other hand, Good and Brophy (1969) studied differential teacher behaviors, the quality of the teacher's response, and the type of feedback provided by the teachers in four first-grade classrooms. In each class three girls and three boys rated high in achievement and three girls and three boys rated low in achievement were observed. Approximately four hours of reading instruction were observed in each classroom and the results showed that teachers extend equal treatment to boys and girls, with high-achievement students of both sexes receiving preferential treatment in some instances. However, boys did receive more teacher criticism over all areas of classroom life because of more disruptive behavior. Good and Brophy

suggest that the children perceive boys as receiving more criticism in reading groups because a generalized halo effect distorts their perception of what really happens in reading groups. Felsenthal (1970) measured teacher attitudes, classroom observation of teacher-pupil interaction, and reading achievement in a sample of 439 first-grade boys and girls and 71 first-grade teachers. The teachers were given Education Scale VII and based upon their scores were divided into four groups: Progressive, Traditionalist, Inconsistent-High, and Inconsistent-Low. Three reading groups in each of 20 classrooms were observed. Felsenthal found that, on the whole, teachers chose to call on and accept the ideas and feelings of boys more frequently than they did with girls. However, they also rejected, ignored, and criticized boys more than than girls. Although sex differences in reading readiness had been insignificant at the end of kindergarten, the girls scored significantly higher in reading achievement at the end of first grade. In the "Progressive" and "Traditionalist" teacher groups, the girls received significantly higher reading achievement scores than did the boys in these groups ( $p < .01$  and  $p < .001$  respectively). There was no significant difference in reading achievement between the boys and girls in the two inconsistent attitude groups of teachers. Felsenthal concludes that differences in pupil reading

achievement are associated with differences in teacher attitudes and interactional behavior. "Progressive and traditionalist teachers are more consistent and extreme in their interaction behavior. The inconsistent-high and the inconsistent-low teachers do not follow a definite pattern of interaction behavior. They appear to be more flexible and more adaptable to classroom variation" (p. 11).

As is seen by the previous studies, there is some disagreement as to the incidence of reading problems between sexes. However, in practically all studies, girls demonstrate superior reading readiness and superior reading achievement in elementary school. The cause of this difference is debatable. It appears that the social milieu of society and of the school situation may well contribute to sex differences. Several cross-cultural studies suggest that the degree to which the student role is identified with either the male or female sex is an important determinant of school success. Two studies in French Canadian schools (Lambert, 1968, Wisenthal, 1968, cited in Blom, 1971) found no sex difference in reading achievement. In these schools the classes are sexually segregated with boys being taught by male teachers. Preston (1962) studied reading achievement of German and American children in the fourth and sixth grades, testing 1,053 children in Wiesbaden, Germany, and 1,338 children

in Philadelphia. Two reading comprehension tests were administered to all subjects: the Frankfurter test, prepared for use in German schools and standardized in Germany, and the comprehension subtest of the Gates Reading Survey. Each test was translated; thus, each pupil took two tests, one native and foreign, in his own language. Correlation between the comprehension scores obtained on the Frankfurter and the Gates tests ranged from .69 to .77 for the German subjects and from .81 to .83 for the American subjects. In reading comprehension the mean scores of the American subjects are significantly higher in half the comparisons of subgroups (grade and sex), favoring the American subjects. However, the German boys outperformed the German girls in reading achievement and had fewer problems in reading disability than the German girls. Preston (1962) suggests that the superiority of boys in reading may be due to the predominantly male teaching body in Germany. He also notes that variability in reading achievement is greater in German girls than in German boys, unlike their counterparts in the United States. He feels that variability may be culturally or environmentally conditioned and rejects the hypothesis that "greater male variability is a universal biological principle (Stephens, cited in Preston, 1962).

An interesting study was one conducted by Johnson (1972). He compared reading achievement in second-, fourth-, and fifth-grade students in Canada, England, Nigeria, and the United States. Between 206 and 292 subjects were studied in each of the four countries. Tests used to measure Vocabulary, Comprehension, Structural Analysis, and Phonics were administered. In Canada, girls surpassed boys on 18 out of 24 comparisons while boys surpassed girls on six comparisons, all at grade six. In England, mean score of boys surpassed those of girls on 17 of 24 comparisons, with only one mean difference being statistically significant. In Nigeria, boys surpassed girls on 20 of 24 scores while girls had higher scores on four. However, the mean composite scores for the boys did not differ significantly from the girls' scores. In the United States, the mean scores of girls were higher than those of boys on 22 out of 24 comparisons. The only statistically significant difference in composite scores occurred at grade four ( $p < .0004$ ). Johnson (1972) states

It is evident . . . that in two countries, England and Nigeria, the boys scored better than the girls on the majority of the 24 mean score comparisons. Conversely, in the United States and Canada, the girls scored better than the boys on the majority of the measures. It seems apparent that sex differences in reading must be attributed primarily to cultural rather than to physiological determinants. (p. 13)



Auerback (1971) points out that presently there are three major approaches now in use in the area of treatment of learning disabilities. The first is the differential diagnostic approach which basically follows the medical model and assumes an underlying neurological impairment. This approach is comprehensive, but time-consuming and expensive. The second approach, the "diagnostic-remedial" approach is exemplified by Kephart (1960) and Frostig (1967) in which diagnosis and remediation are part of a continuum in which specific deficits discovered by the diagnostic battery are "remediated" by specific tasks. The third approach is a teaching technique approach in which the specific problems of a specific child are looked at in the classroom and dealt with "on the spot," without any emphasis on diagnosis or etiology. Auerbach suggests that each of the previously mentioned approaches have assets and drawbacks and he feels that social control of learning disabilities should be emphasized, where there is more parent involvement. He suggests that it is better to have a less sophisticated treatment plan which will be followed than a very sophisticated treatment plan which will be ignored.

## CHAPTER III

### METHOD

#### Subjects

The sample (N=99) consisted of all the kindergarten children attending Stephen Foster Elementary School, Alachua County, Florida, who had been administered the Developmental Predictive Battery in the fall, 1974, and who had also been administered the Sociometric and Self-Concept Tests in the spring, 1975. This sample consisted of 52 boys and 47 girls. Forty-three of the boys were White and nine boys were Black. Thirty-seven of the girls were White and 10 girls were Black. At the time of testing in the spring, 1975, the ages of the children in the sample ranged from five years five months to six years four months. The sample was drawn from four kindergarten classes.

This sample was part of the total kindergarten population attending Stephen Foster School in the spring, 1975 (N=132). The total population was drawn from five kindergarten classes. Because of the nature of the Sociometric measure and because the author had no prior knowledge of

the original population tested in the fall, 1974, it was necessary that all kindergarten children enrolled in spring, 1975, be administered the Sociometric and Self-Concept Tests. It was later discovered that of the 132 children tested in the spring, 1975, 23 had not been a part of the original population which had received the Developmental Predictive Battery, although both populations contained 132 children. This meant that by attrition, 23 children had left the school and 23 children had been admitted following the administration of the original battery. It was also discovered that of the 23 children who had not received the Developmental Predictive Battery, 13 were in one class. This was due primarily to the fact that this teacher's class had been made up following the beginning of the school year and secondarily to the fact that her class contained several first graders. Since these 13 children constituted 57% of her class, any statistical analysis which compared the results of the battery administered in the fall, 1974, with the tests administered in the spring, 1975, was impossible. Therefore, it was decided to drop this class from the study. The resulting sample consisted of the children from the four remaining classes (N=109), 10 of whom were not administered the predictive battery in the fall, 1974.

### Procedure

One hundred thirty-two children, the entire population of kindergarten classes at Stephen Foster School, were tested in May, 1975, over a period of four weeks. The author and another examiner each tested half of the population. Both examiners were experienced in the evaluation of children in this age group. The children were tested by class with assignment of a particular child to a particular examiner done by random selection. The order in which the tests were administered was arbitrarily decided upon in advance and the same order of tests was administered to each child.

The examiners had no knowledge of the results of the predictive test battery which had been administered the previous fall during the first few weeks of kindergarten. Three testing locations were used, all in the school. Examiner I (the author) used the stage in the school auditorium exclusively; Examiner II used primarily a special education van parked adjacent to the school and also a room adjacent to the school media center. The testing time of each child ranged from 15 to 40 minutes.

## Measures

### Independent Variables

Two general classes in independent variables were employed.

Developmental test battery: predicted risk groups. The predictive battery developed by Satz and associates (1970, 1974, 1975) was administered to all kindergarten children in the fall, 1974, and consisted of the following tests: Alpha-Recitation, Finger Localization, Recognition-Discrimination Test, Developmental Test or Visual-Motor Integration (Beery), Peabody Picture Vocabulary Test, Dichotic Listening Test, Auditory-Discrimination Test and Socioeconomic Status (see Appendix A for a description of the tests).

Using the weights derived from the pooled standardization and cross-validation groups of White boys, the following four Risk Groups were generated which included boys, girls, White, and Blacks:

- |                            |             |
|----------------------------|-------------|
| 1. Severe High Risk Group  | N = 47 (++) |
| 2. Mild High Risk Group    | N = 20 (+)  |
| 3. Average Low Risk Group  | N = 43 (-)  |
| 4. Superior Low Risk Group | N = 22 (--) |

These four Risk Groups were further collapsed into two groups, combining Groups 1 and 2 (High Risk) and

Groups 3 and 4 (Low Risk). The resulting groups were distributed as follows:

- |                    |            |
|--------------------|------------|
| 1. High Risk Group | N = 67 (+) |
| 2. Low Risk Group  | N = 65 (-) |

Criterion achievement measures were obtained on all the children at the end of kindergarten, 1975, to determine the predictive accuracy of the test decisions obtained in the fall using the pooled weights of previous samples of white males. The tests correctly identified 100% of the children who fell in the Severe and Superior groups at the end of the year. Table 1 presents the results of these measures.

Since the sample in this study does not represent the entire population tested with the predictive battery (fall, 1974), the distribution of this sample into Risk Groups is presented as follows:

- |                 |            |
|-----------------|------------|
| High Risk Group | N = 45 (+) |
| Low Risk Group  | N = 54 (-) |

Other independent variables. The second class of independent variables consists of the Sex, Race, and Socio-economic status of the child. It seems appropriate at this point to carefully define the use of the term "Race" in view of the following discussion and in view of the fact sociological observations were made. Because of the possible constitutional aspects of the predictive battery used

TABLE 1

Predictive Classification of Cross-Validation Sample II  
 (Sept., Grade K) into Achievement Groups (June,  
 Grade K) based on Discriminant Function  
 Weights (Abbreviated Battery)  
 of Standardized Population  
 (N=639)<sup>a,b</sup>  
 (2 x 4 Matrix)

Composite Discriminant Scores	Criterion Achievement Groups				
	Severe	Mild	Average	Superior	
+	N	12	26	26	0
	%	(100)	(80)	(41)	(0)
-	N	0	7	37	20
	%	(0)	(20)	(59)	(100)
T		12	33	63	20

<sup>a</sup>Population = Standardization Group (Grades K-2) and Cross-Validation Group I (Grades K-2)

<sup>b</sup>Total Hits =  $95/128 = 74\%$

in this study, it is necessary not to infer a specious concretism by using the term "Race." It should be emphasized that the term "Race" only denotes the generally accepted categories of skin color used by the population of the United States (White/Black) and in no way implies any other given constitutional differences.

The distribution of the sample used in this study in terms of Risk Group, Sex, and Race is presented in Table 2. As can be observed in Table 2, Black boys and girls make up 19.2% of the sample. Of this subgroup, 100% of the Black boys are in the predicted High Risk group and 36.8% of the Black girls are in the predicted High Risk group. In comparison, only 22.5% of the White boys and 13.8% of the White girls are in the predicted High Risk group.

In addition to Sex and Race, Socioeconomic status (based upon receiving a free lunch) will be examined.

#### Dependent Variables

Two general sets of dependent variables were employed.

I Feel-Me Feel...Self-Concept Appraisal (Yeatts & Bentley, 1970). This test was developed as a tool to measure the self-appraisal of young and low verbal



TABLE 2  
High and Low Risk Boys and Girls by Race

Risk Group	White		Black		Total
	Boys	Girls	Boys	Girls	
High Risk (+)	18	11	9	7	45
Low Risk (-)	25	26	0	3	54
Total	80		19		99

individuals. It identifies the individual child's feelings towards others and things such as the body in action, academics, adult figures, and social situations with peers. It delineates areas in which children need special planned environmental experiences to insure success. Personal self-concepts may vary according to the situation in which one finds himself. For example, a child may feel able with peers and not with teachers. The scale was developed from taped sessions of conversations of children in kindergarten through third grade in their classrooms, playgrounds, bathrooms, and cafeterias. Items derived from analysis of the tapes were then given to an artist to depict in a culture-free format. A team of 20 educators was asked independently to describe each of the pictures. The artist continued to work with each picture until it was considered socioculture free and until it depicted the words indicated. The 40 items generated were administered to 87 preschool, 262 first grade, 251 second grade, and 289 third grade children. The teachers then rated the children according to their relationships with adults and children. Pearson correlations were used to determine the relationship between two external measures, thereby giving a measure of validity. For the kindergarten children, the following correlations were obtained: (1) the correlation between the Metropolitan Reading Test and the

Self-Appraisal score = .72; (2) the correlation between the teacher's ratings on interpersonal skills and the Self-Appraisal score = .87. A retest was administered on the tenth day following the first administration of the test. The test/retest reliability coefficient was .78 for the kindergarten children. The following factors emerged as a result of administration of the 40 items to 4,296 children: General Adequacy, Peer Items, Teacher-School Items, Academic Items, and Physical Items (see Appendix B and C for a description of these items).

Each of the 40 items in this test requires the child to respond to a picture and accompanying statement by the examiner by pointing to one of five circle faces under the picture. These faces range in degrees from a frowning face ("very sad") to a smiling face ("very happy"). Thus, in response to a silhouette picture of a child walking beside a female adult figure and the accompanying statement: "Walking with the teacher makes me feel...", the child is asked to point to one of the five faces. Scoring on each item ranges from 1-5 (1 = very sad; 5 = very happy). The item scores on each of the five factors generated by Yeatts and Bentley (1970) are computed and five "sets of scores" result, namely: General Adequacy, Peer Items, Teacher-school Items, Academic Items, and Physical Items.

The "Guess-Who" Questionnaire. This type of questionnaire has been used by many observers of childhood interaction (Garry, 1963; Bowman, 1956). The basic questionnaire consists of a series of questions asked of individual children in a class. The child responds with a name of one of his or her classmates. Mitchell (1956) developed a variation of this questionnaire which consists of 19 items, divided into six subgroups. Mitchell labeled these groups: Leadership Ability, Aggressive Maladjustment, Withdrawn Maladjustment, Practical Intelligence, Friendship Item, and Negative Friendship item. He administered the questionnaire to 98 fourth graders in three classrooms and found three basic factors which he labeled "Social Acceptability," "Aggressive Maladjustment," and "Social Isolation." Because Mitchell's subjects were fourth graders and the subjects in this study were kindergarten children, the author decided to retain the original groupings. In addition, the Friendship Item and the Negative Friendship Item were each expanded to allow for three responses to each of the items. Thus, in response to the question, "Who is your best friend in the class; who do you like best?", two additional names of friends were requested. Similarly, in response to the question, "Who don't you like for friends in your class?", three names were requested. The author also decided to include a question reflecting the possible

presence of hyperactivity: "Who moves around a lot in class, always out of his or her seat?" This item was considered separately from the other groups of items, and was labeled Hyperactivity.

Because Mitchell's questions were designed for a fourth grade population, the author consulted with five kindergarten teachers who were not involved with the population studied. They assisted in rewording several of the items to make them easily understood by kindergarten children without changing the essential meaning of the question. Thus, "Who are the boys and girls that you do not notice? You just don't think about whether they are with you or not" was altered to "Who don't you see much? You don't notice whether they are with you or not?"

Moore and Updegraff (1964) expanded the friendship items used by Mitchell, using preschool children including those of early kindergarten age (4 years 6 months to 5 years 6 months). They used pictures of all the children in the class and obtained four choices of "Someone whom you especially like" and "Some one whom you don't like very much." Test/retest was done one to two weeks later and the reliability for ages 4-6 to 5-6 was found to be .78. Because of the possibility that kindergarten children would not be able to remember the names of other children in their class, a small pilot study was conducted with 15

kindergarten children attending another elementary school in the same county. It was observed that the kindergarten children in the pilot study had no difficulty in responding quickly to the "Guess-Who" questions and the author decided that there was no necessity for the children to have pictures of their classmates in order to respond easily to the questionnaire.

The "Guess-Who" Questionnaire administered to the sample in this study consists of 24 items divided into seven "sets of scores." These "sets of scores" are labeled Leadership (five items), Aggressive Maladjustment (five items), Withdrawn Maladjustment (five items), Practical Intelligence (two items), Hyperactivity (one item), Positive Friends (three items), and Negative Friends (three items). The number of nominations received by each child for each item is computed and this figure represents his "score" for that item. Because each child could not name himself on any item and could only name one other child for each item, his total possible "score" on each item could range from zero to the number of children in the class minus one. The "score" for each item was added to the other "scores" which contributed to a particular "set of scores" such as Leadership, Aggressive Maladjustment, etc. Thus each child receives a cumulative score on each of the seven variables of the "Guess-Who" Questionnaire.

(See Appendix D and E for a description of the "Guess-Who" Questionnaire.)

### Statistical Analyses

Both descriptive and inferential statistical analyses were employed.

#### Descriptive Statistics

In order to statistically describe the sample and to assess the possibility of such effects as Examiner Bias, Test Location Bias, etc., Chi Square ( $\chi^2$ ) tests for independence were computed.

#### Inferential Statistics

Because of the number of separate analyses of variance which would have been required to analyze the data, multivariate analysis of variance (MANOVA) was considered to be the most appropriate procedure (Anderson, 1958). The MANOVA is a multivariate analogue of the univariate analysis of variance (ANOVA) procedures, employing vectors of variables rather than scalars. The MANOVA procedure is necessary to decrease the probability of a Type I Error. If individual ANOVAs were used on each of the dependent measures, statistical significance might have been obtained by chance along on one of the measures. The alpha level

was set according to the formula

$$\alpha = \frac{.05}{\text{number of significant effects found in MANOVA}}$$

Hotelling-Lawley's Trace was selected as the multivariate analogue of the univariate F statistic.



## CHAPTER IV

### RESULTS

The results of the statistical analyses will be presented in two main sections. First, the total sample will be presented on the basis of both descriptive and inferential statistical procedures. Second, the individual classes will be presented using descriptive statistical procedures.

#### The Total Sample

##### Descriptive Statistical Analyses

In order to rule out the possible effects of Examiner Bias, Test Location Bias, Time of Day Bias, etc., and to further describe the population, pertinent Chi Square statistics were computed. The results of these distributions are presented in Table 3. As can be seen by the Chi Square table, the distribution of Sex when compared with the discontinuous variables presented in the table was independent. The distribution of Race was independent when compared with Teacher, Examiner, Test Location, Time of Day testing (morning or afternoon), although as can be seen, there was a significant relationship between racial group and the time

in minutes it took to administer the tests ( $p < .004$ ). Thus Black children differed significantly in the time it took to administer the test. The comparison of Race and Free Lunch was highly significant ( $p < .001$ ) as was the comparison of Race and Risk Group ( $p < .001$ ). Although the comparison of Race and Teacher was not significant, it should be noted that the comparison of Risk Group and Teacher was highly significant ( $p < .001$ ).

Careful observation of the Chi Square distributions presented in Table 3 help to statistically quantify a description of the sample to be studied and in fact "set the stage" for further statistical analyses. In noting the lack of significance in comparing the distributions of Sex, Race, and Risk Group with Examiner, Test Location, or Time of Day, the assumption of a lack of relationship in these areas would appear to be supported.

On the other hand, although the comparisons between Sex and Race and Sex and Risk Group were not significant, the comparison between Race and Risk Group was highly significant. Thus, in this sample, the Black children were found to be significantly higher risk children. In addition, although the comparisons between Sex and Teacher and Race and Teacher were not statistically significant, there was a high level of significance between Risk Group and Teacher. This appearance of a lack of independence of Risk Group

TABLE 3  
 $\chi^2$  Values for Independent Variables

Variables	$\chi^2$	N	df	Significance
Sex x Race	0.226	109	1	0.635
Sex x Teacher	0.544	109	3	0.909
Sex x Examiner	3.303	109	1	0.069
Sex x Test Location	4.082	109	2	0.130
Sex x Time in Minutes	21.257	109	18	0.267
Sex x AMPM	0.901	109	1	0.342
Sex x SES Lunch	0.093	99	1	0.761
Sex x Risk Group	4.657	99	3	0.199
Race x Teacher	4.280	109	3	0.233
Race x Examiner	0.486	109	1	0.486
Race x Test Location	1.194	109	2	0.551
Race x Time in Minutes	38.151	109	18	0.004
Race x AMPM	0.001	109	1	0.976
Race x SES Lunch	17.816	99	1	0.000
SES Lunch x Risk Group	32.866	99	3	0.000
Race x Risk Group	18.25	99	3	0.000
Risk Group x Teacher	29.51	99	9	0.001
Risk Group x Examiner	4.35	99	3	0.226
Risk Group x Time in Minutes	66.99	99	51	0.066

with respect to the four different teachers must be kept in mind as the following inferential statistical analyses are described.

### Inferential Statistical Analyses

The "Guess-Who" Questionnaire. The seven dependent variables which constituted the "Guess-Who" Questionnaire (Leadership, Aggressive Maladjustment, Withdrawn Maladjustment, Practical Intelligence, Hyperactivity, Positive Friends, and Negative Friends) were analyzed on the basis of Risk Group, Sex, and Race and the interactions of these independent variables using the MANOVA procedure and Hotelling-Lawley's Trace as the test of statistical significance. Table 4 presents the results of these analysis. As can be observed in Table 4, Sex, Race, and the interaction of Sex and Race were significant independent variables. Because of the necessity for a conservative interpretation of the results, only those variables which were significant in the MANOVA analysis could be considered in the univariate analyses (ANOVAs) of the seven dependent variables in the "Guess-Who" Questionnaire. In this particular analysis a  $p$  value  $< .0167$  was considered necessary for statistical significance (Shuster, personal communication). The results of the univariate analyses of the significant independent effects in the "Guess-Who"

TABLE 4

"Guess-Who" Questionnaire--Total Sample:  
Significance of Independent Variables Using MANOVA Procedure

Independent Variables	F	df	P
Risk Group	0.45	7,86	0.87
Sex	4.11	7,86	0.01
Race	3.67	7,86	0.002
Sex and Risk Group	1.09	7,86	0.37
Race and Risk Group	0.10	7,86	0.56
Race and Sex	2.14	7,86	0.05

Questionnaire are presented in Table 5. Inspection of this table shows that two of the dependent variables of the "Guess-Who" Questionnaire, Aggressive Maladjustment and Negative Friends, were highly significant for the interaction of Sex and Race, and for Sex and Race individually. The dependent variable, Withdrawn Maladjustment, was significant for Race only, and none of the other dependent variables were significant. These results suggest that two of the seven dependent variables in the "Guess-Who" Questionnaire were accounting for the overall significance of the MANOVA. In observing the R-square computation, it can be noted that 38% of the variance of Aggressive Maladjustment could be accounted for by Sex, Race, and the interaction of Sex and Race, and 35% of the variance of Negative Friends could be accounted for by these same three independent effects. This finding contrasts with the observation that only 13% of the variance of Leadership and only 9% of Hyperactivity was accounted for by Sex, Race, and the interaction of Sex and Race. In other words, it was demonstrated that for this sample, the independent variables of Sex (boys) and Race (Black) and the interaction of these variables (Black boys) accounted for the significance of the dependent variables Aggressive Maladjustment and Negative Friends.

TABLE 5

"Guess-Who" Questionnaire--Total Sample:  
Significance of Univariate Analysis of Variance

Variable	Sex	Race	Sex/Race	R-square
Leadership	NS	NS	NS	0.128
Aggressive Maladjustment	.0023	.0001	.0003	0.375
Withdrawn Maladjustment	NS	.0037	NS	0.152
Practical Intelligence	NS	NS	NS	0.135
Hyperactivity	NS	NS	NS	0.090
Total Positive Friends	NS	NS	NS	0.187
Total Negative Friends	.0023	.0001	.0044	0.353

The "Guess-Who" Questionnaire--whites only. Because of the powerful effect of Race upon the dependent variables of the "Guess-Who" Questionnaire, it was considered appropriate to examine the two racial groups separately (Blacks and Whites). However, because the number of Black children was small ( $N=19$ ) and because there were no Black boys in the "Low Risk" group, the MANOVA procedure was inappropriate for the Black subsample. The MANOVA procedure was used on the White subsample and the results are presented in Table 6. Inspection of this table shows that the MANOVA procedure used to examine the effect of Risk Group and Sex and the interaction of Risk Group and Sex for the White children alone was not significant, although the effect of Risk Group approached statistical significance ( $p < .06$ ).

The "I Feel-Me Feel" Test. The five dependent variables which constituted the "I Feel-Me Feel" Test (Adequacy, Peer, Teacher-School, Academic, and Physical) were analyzed on the basis of Risk Group, Sex, and Race and the interactions of these independent variables using the MANOVA procedure and Hotelling-Lawley's Trace as the test of statistical significance. Table 7 presents the results of these analyses. Inspection of this table shows that none of the independent effects considered were statistically significant. The White portion of the sample was



TABLE 6  
 "Guess-Who" Questionnaire--White Only:  
 Significance of Independent Variables Using MANOVA Procedure

Independent Variable	F	df	p > F =
Risk Group	2.05	7,70	0.06
Sex	1.19	7,70	0.32
Sex and Risk Group	1.03	7,70	0.42

TABLE 7  
I Feel-Me Feel Test--Total Sample:  
Significance of Independent Variables Using MANOVA Procedure

Independent Variable	F	df	p > F =
Risk Group	1.57	5,88	0.18
Sex	1.02	5,88	0.41
Race	1.01	5,88	0.42
Sex and Risk Group	1.34	5,88	0.24
Race and Risk Group	0.79	5,88	0.56
Race and Sex	0.13	5,88	0.98

then considered separately (N=80) and the effects of Risk Group, Sex, and the interaction of Risk Group upon the five variables of the "I Feel-Me Feel" Test were analyzed using the MANOVA procedure and Hotelling-Lawley's Trace as the test of statistical significance. Table 8 presents the results of these analyses. Inspection of this table shows that when White children are considered separately, the effect of Risk Group is statistically significant ( $p < .007$ ). As was mentioned previously, only the variable which was statistically significant in the MANOVA procedure (in this case, Risk Group) could be considered in the ANOVAs of the five dependent variables of the "I Feel-Me Feel" Test. The results of the variable Risk Group upon the five dependent variables are presented in Table 9. Inspection of Table 9 shows that although the effect of Risk Group was statistically significant in the overall MANOVA for the white subsample, it was not significantly significant for any of the five dependent variables which made up the "I Feel-Me Feel" Test.

#### The Individual Classes

Because the Chi Square comparison of Teacher and Risk Group was significant at the .0005 level, it was considered necessary to examine the composition of the individual classes. The breakdown of Teacher and Risk Groups

TABLE 8

I Feel-Me Feel Test--White Only:

Significance of Independent Variables Using MANOVA Procedure

Independent Variable	F	df	p > F =
Risk Group	3.52	5,72	0.07
Sex	1.41	5,72	0.23
Sex and Risk Group	1.26	5,72	0.29

TABLE 9  
 I Feel--Me Feel Test--White Only:  
 Significance of Univariate Analysis of Variance

Variable	Risk Group	R-square
Adequacy	0.148	0.055
Peer	0.594	0.074
Teacher-School	0.406	0.050
Academic	0.580	0.024
Physical	0.531	0.082

is presented in Table 10. Table 11 presents a collapsed version of Table 10 in which Risk Groups 1 and 2 are combined ("High Risk") and Risk Groups 3 and 4 are combined ("Low Risk"). The differences in Risk Group distribution become apparent as it is observed, for example, that in Teacher II's class, 40% of her class are in the "Severe High Risk" group and only 5.9% are in the "Superior Low Risk" group. On the other hand, in Teacher IV's class, 3.3% are in the "Severe High Risk" group and 58.8% are in the "Superior Low Risk" group.

As was noted previously, the comparison between Race and Risk Group for the total sample was highly significant ( $p < .0004$ ). However, the comparison between Teacher and Race was not. Table 12 presents the breakdown of the Race of the children by Teacher. It should be noted that although Teacher and Race were shown to be statistically independent (Chi Square test), Teacher I had twice as many Black children in her class as other teachers.

Because of the small number of children in the classroom subsamples, the use of inferential statistical analyses was not considered appropriate. This descriptive presentation of the composition of the individual classrooms serves to point out the fact, however, that the classrooms were not homogeneous as to Risk Group.

TABLE 10  
Distribution of Predicted Risk Groups by Teacher

Teacher	Risk Group				Total
	1	2	3	4	
I	11	4	9	3	27
II	12	5	6	1	24
III	6	5	14	3	28
IV	1	1	8	10	20
Total	30	15	37	17	99

TABLE 11

Distribution of Predicted High Risk Group and Low Risk Group by Teacher

Teacher	High Risk	Low Risk	Total
I	15	12	27
II	17	7	24
III	11	17	28
IV	2	18	20
Total	45	54	99



TABLE 12  
Distribution of Race by Teacher

Teacher	White	Black	Total
I	20	9	29
II	24	4	28
III	24	4	28
IV	21	3	24
Total	89	20	109

## CHAPTER V

### DISCUSSION

At the outset it must be stated that the results of this study must be viewed with extreme caution and generalization to other populations must be rendered carefully. This is not to deny the stimulating and somewhat disturbing implications of the present investigation for other longitudinal or predictive studies.

Firstly, it must be remembered that Satz's predictive battery has been extremely powerful in predicting future reading disability in White males but the predictive ability of the battery, when extended to females and Black children, is only now in the process of being validated over a longer follow-up period. There have been varying opinions concerning the maturational development of girls vs. boys in terms of reading readiness and other related skills in the acquisition of reading, but it has been generally assumed that girls master reading skills earlier than boys. Whether this is due to a "real" developmental superiority on the part of girls at the early elementary level or whether it is due to the social reinforcement of so-called

"feminine" behavior by teachers, the fact remains that girls are generally expected to acquire reading skills more readily than boys by our cultural expectations. As was observed by Bryan (1975), girls with reading disabilities were perceived more negatively by their peers when they were in the third and fourth grades. Also, the use of the predictive battery with a Black population is in the early stages of study. Secondly, the fact that the four kindergarten classes studied proved to be in no way homogeneous as to race and risk group must be considered as the results of the sociometric and self-esteem measures are examined. The sociometric or "Guess-Who" technique was a self-limiting questionnaire; this means that children were limited to (1) only naming children in their own class and (2) only giving one response to each question and (3) not naming themselves in response to any of the questions. Thus, in interpreting the results, caution must be used in generalizing to other populations in which race and risk group are equally distributed.

In this study, it becomes quite apparent that race plays an extremely important part in the manner in which kindergarten children perceive each other. When race, sex, and risk group were taken into account in the multivariate analysis of the "Guess-Who" Questionnaire, race was the most potent independent variable, followed by sex and risk

group. This suggests that Black boys are seen significantly differently by their peers than the rest of the sample. The overall multivariate analysis was significant at the .0019 level for race, at the .009 level for sex, and at the .0476 level for the interaction of sex and race. However, in looking back at the individual factors of the "Guess-Who" Questionnaire, the factors labeled "Aggressive Maladjustment" and "Negative Friends" were significant for sex, race, and the interaction of sex and race, and the factor "Withdrawal Maladjustment" was significant for race. It is readily apparent that the so-called "negative" factors were the ones accounting for the overall significance of the "Guess-Who" Questionnaire.

It must be kept in mind that race and risk group are highly correlated. It would appear that the effect of race, especially in regards to the "negative" factors, in effect may well "mask" the effect of risk group. Interpretation of this finding must be made guardedly but several possibilities seem likely to contribute to these results. Firstly, it appears possible that the concept of "negative" behavior, such as "Who breaks the rules?" or "Who is mean and cruel to other children?" is much more clearly understood by kindergarten children than are the more "positive" questions such as "Who makes things better for the whole class?" or "Who is the best leader, the best line leader?"

Studies have shown that negative behaviors are more quickly responded to by teachers and peers, are dealt with immediately out of necessity and thus may well be more strongly associated with a particular child who exhibits these behaviors. The more "positive" behaviors, at least the ones tapped in the present questionnaire, appear to be less clearly understood by the kindergarten child. It also seems likely that when a child gives a response to a "negative" question, he or she names a child socially distant from himself or herself, one to whom over the period of a year has been attributed many negative characteristics. This factor may contribute to the high "loading" of particular children on the "negative" factors.

The effect of race and sex in the eyes of kindergarten children appears to be extremely important. It is apparent that Black boys are seen more negatively by their peers. That they are also entirely predicted as high risk children (of the nine Black boys, eight are in the Severe High Risk Group and one is in the Moderate High Risk Group) is important to consider, but it appears that it is race and sex, rather than risk group, which accounts for their negative perception by their peers, at least in this particular sample.

It is evident from the overall results of the "I Feel-Me Feel" test that kindergarten children in general tend to

perceive their school experience very positively. Using the MANOVA procedure, the results were not statistically significant for the total sample. However, when the analysis was limited to the White subsample, the effect of Risk Group was significant ( $p < .001$ ). However, in looking at the various factors which made up the "I Feel-Me Feel" test, none were found to be significant. This implies that there may be an additive effect of the various factors (Adequacy, Peer Relationships, etc.) which, when observed in combination, demonstrate a significantly lower level of self-concept for the High Risk White children. This finding appears to have important implications as to the intrapsychic correlates of White children with predicted reading disabilities. It appears that, in this sample at least, White High Risk children are already showing a lower level of self-concept than their Low Risk White classmates, even though they are not perceived negatively by their peers and have not yet experienced reading failure. This finding would tend to support the view that, in the White subsample at least, the concept of a constitutional maturational lag may be accompanied by a lowered level of self-concept, even when these feelings are not being reinforced by the social milieu in the classroom. This finding is disturbing because it implies that even with a positive educational climate, the potentially High Risk White child has perhaps experienced some social

failures in the past which have generalized to the school situation. In discussing this finding of a lowered level of self-concept on the part of the High Risk White children, it seems appropriate to elaborate the term "self-concept." When this term is encountered, it is often the more limited concept of "self-esteem" which is being utilized. "Self-concept" is a global term reflecting an individual's relationship with the environment, intellectually, emotionally and physically. Self-esteem, however, reflects the measure-ment of global "self-concept" along positive or negative dimensions. The dimensions of "self-concept" along which an individual measures his own self-esteem vary; it is this variation in dimension which reflects the variation between and within individuals in the course of development of "self-concept." According to Coopersmith (1967), there are four major factors contributing to the development of self-esteem: (1) respectful, accepting and concerned treatment that an individual receives from significant others in his life; (2) an individual's history of successes and the status and position one holds in the world; (3) living up to aspirations in areas an individual considers significant; (4) the individual's manner of responding to de-valuation. If in fact predicted reading disability reflects a maturational lag, it seems likely that not only skills which lead to successful reading, but other skills, may well be tapped

by the predictive battery. If a child is different from others in kindergarten, it seems likely that he or she may have been different long before beginning kindergarten. This "differentness" may well have affected the factors described by Coopersmith. Looking only at the results of the present study, it would appear that the positive reaction of peers cannot counteract a generalized lowered self-concept which has been present and perhaps reinforced over a period of time.

The finding that the four classes observed were in no way homogeneous as to Risk Group must be discussed with an eye towards caution in terms of generalization to other kindergarten populations. The predictive battery was administered during the first few weeks of school; this would appear to rule out any effect of a particular teacher upon a particular group of children. However, it is apparent that in this school, at least, children are not placed randomly in the classrooms. Many parents and professionals would agree that in spite of the fact that school "policy" states that kindergarten children are placed randomly in kindergarten classes (with the exception of having sex and race evenly distributed throughout the classes), this is in fact not the case. Parents who are "concerned" about their child's education find out through the school grapevine who are supposedly the "best" kindergarten teachers. This school appears to be no different.



Obviously the finding that these classes are not homogeneous as to Risk Groups must be replicated on other kindergarten populations. However, the question can be raised as to the time of administration of the predictive battery and the resulting placement in a particular kindergarten classroom. For example, in this study Teacher IV had only one Severe High Risk child who happened to be a Black boy, and this child was perceived extremely negatively by his peers. On the other hand, Teacher II had only one Superior Low Risk child in her class who happened to be a White girl. This child was perceived extremely positively by her peers. Both children were in fact very deviant in terms of the composition of their respective classes. The question must be considered as to what is the optimum placement of High Risk children in the classroom. The view of optimum placement may vary according to one's philosophy. For example, it may seem appropriate to place an equal number of High Risk and Low Risk children in each classroom, allowing for equal academic and social interaction between the groups. On the other hand, perhaps one or two classes should be heavily loaded with High Risk children and teachers with special skills should be assigned to these classes along with additional supportive staff and resources. In any case, it appears that the predictive battery, which has been shown to be extremely successful in predicting potential reading

disability, should ideally be administered prior to the assignment of a child to a particular kindergarten class.

## APPENDICES

APPENDIX A  
DEVELOPMENTAL TEST BATTERY

1. ALPHABET RECITATION: Recitation of ABC's. Score: number of letters named, regardless of order in which given.
2. FINGER LOCALIZATION: Somatosensory test consisting of five levels of performance, four of which (1,2,4 and 5) presumed to assess increasing levels of complexity.
  - (1) Shielded unilateral stimulations made to the fingertips; shield removed between stimulations and S required to point to the finger touched with the index finger of his free hand. Five trials per hand, starting with preferred hand.
  - (2) Shielded unilateral stimulations made to the fingertips; S identified each stimulated finger on a corresponding diagram of an opened hand. Five trials per hand, starting with preferred hand.
  - (3) Shielded, randomized series of three bilateral and ten unilateral stimulations made to the backs of S's hands; S waved hand(s) stimulated. Only bilateral trials scores.
  - (4) Shielded unilateral stimulations made to the fingertips; S recalled the number of the finger stimulated. Instructions in the numbering of each hand given immediately before the stimulations to that hand. Five trials per hand, starting with preferred hand.
  - (5) Shielded simultaneous bilateral stimulations made to pairs of fingertips; S recalled the number of the finger stimulated on each hand. Score: percent correct across all five levels.
3. RECOGNITION-DISCRIMINATION: Visual-perceptual task requiring S to identify a geometric stimulus design among a group of four fingers, three of which were rotated and/or similar in shape to the stimulus figure. Score: percent of 15 trials correct.
4. DEVELOPMENTAL TEST OF VISUAL-MOTOR INTEGRATION: Score: age equivalents (in mos.).
5. PEABODY PICTURE VOCABULARY TEST: Score: intelligence quotients.
6. DICHOTIC LISTENING: Measure of ear asymmetry in which S presented with disparate pairs of numbers arriving simultaneously via stereo headphones every half-second. S required to recall numbers heard. Version in this study consisted of 30 trials of three-pair digit sequences with an intertrial interval of 10 seconds for recall. Scores: total recall from both the right and left channels, and an ear asymmetry measure derived from the ratio  $(RC-Lc)/(RC+LC)$ .

7. AUDITORY-DISCRIMINATION: Shortened, taped, version of the Wepman Auditory Discrimination Test. S required to recognize on 20 trials whether pairs of words heard through earphones were the same (a single word repeated) or different (two different, but similar sounding words). Score: sum of the ratio of correct 'same' responses to the total number of 'same' responses and the ratio of correct 'different' responses to the total number of 'different' responses. Range: 2.0-0.0.
8. SOCIOECONOMIC STATUS: This was based on whether the child received a free or reduced fee lunch.

APPENDIX B

I FEEL-ME FEEL...TEST

Items from Test:

1. Walking with the teacher
2. Building things
3. Doing things for the first time
4. School
5. When the teacher talks
6. Counting to ten or more
7. singing
8. Reading
9. Doing things by myself
10. Going to school
11. When I talk to the teacher
12. When I get mad
13. My clothes
14. Dogs and cats
15. When I draw
16. Flowers
17. Looking in the mirror
18. Running
19. When I point
20. Writing
21. Children
22. My hair
23. Big people
24. Building things by myself
25. When I play
26. Reading
27. When I dance
28. Throwing a ball
29. Eating lunch at school
30. My class at school
31. Going down a slide
32. Doing things I've done before
33. Listening to stories
34. Playing games
35. Arithmetic
36. Boys
37. Playing with girls
38. The teacher
39. Books
40. The principal's office



APPENDIX C

I FEEL-ME FEEL...TEST FACTORS

Responses to the instrument with the variables of grade, race, and academic achievement were intercorrelated. A principal-components factor analysis was then made, using units in the diagonals. The factors were then rotated by means of varimax rotation--items with loadings of .30 or higher were inspected and the factor was named by considering the content of the items within each factor.

The analysis revealed five factors. The factors included were:

FACTOR I--General Adequacy

This factor was comprised of items 7-14-16-19-20-29-31-32-33-35-36-37-38-39-and 40, which represent a cross section of concerns and seemed to indicate a general adequacy.

FACTOR II--Peer

This factor was comprised of items 9-12-13-14-17-21-23-27-30-34-36, and most of which concerns relationships with peers. Items concerning physical appearance also entered into this factor.

FACTOR III--Teacher-School

This factor was comprised of items 1-4-5-10-11-23-29-33-and 38, representing the teacher classroom items.

FACTOR IV--Academic

The Academic factor was comprised of items 2-3-6-8-15-20-24-26-30-32-35-39-and 40. These items are those

concerned with academic concerns, however, three items emerging as significant in this factor had to do with physical appearance.

FACTOR V--Physical

The items emerging as significant for the physical appearance factor were 3-17-18-21-22-25-27-28-31-34-and 37. These items deal with those concerned with physical ability and physical appearance.

APPENDIX D

"GUESS-WHO" QUESTIONNAIRE

## GUESS-WHO?

I'M GOING TO DESCRIBE SOME KIDS IN YOUR CLASS. I WANT YOU TO GUESS WHO THEY ARE. (the child cannot name himself)

1. Who makes good plans? Thinks of good things to do?
2. Who is the best leader: the best line leader?
3. Who stays out of games; they don't like to play hard?
4. Who breaks the rules, rules of school and rules of a game?
5. Who in the class seems to understand things most easily, the best?
6. Who makes things better for the whole class?
7. Who lies and steals sometimes?
8. Who is too shy to make friends easily? It's hard to get to know them.
9. Who complains about things? Nothing makes them happy.
10. Who is very smart at games and other things? They have a lot of good ideas.
11. Who doesn't like it when the teacher asks him or her to say something?
12. Who do the kids like best in the class?
13. Who don't you see much? You don't notice whether they are with you or not?
14. Who is afraid to take chances?
15. Who quarrels and gets mad easily?
16. Who is sure to have good ideas for games and other interesting things to do?
17. Who is mean and cruel to other children?

18. Who moves around a lot in class, always out of his or her seat?
19. Who is your best friend in class? Who do you like best?
  - 1.
  2. Who else?
  3. Who else?
20. Who don't you like for your friends in class?
  - 1.
  2. Who else?
  3. Who else?

APPENDIX E

GROUPS OF "GUESS-WHO" QUESTIONNAIRE

#### LEADERSHIP ABILITY

1. Who makes good plans? Thinks of good things to do?
2. Who is the best leader: the best line leader?
6. Who makes things better for the whole class?
12. Who do the kids like best in the class?
16. Who is sure to have good ideas for games and other interesting things to do?

#### AGGRESSIVE MALADJUSTMENT

4. Who breaks the rules, rules of school and rules of a game?
7. Who lies and steals sometimes?
9. Who complains about things? Nothing makes them happy.
15. Who quarrels and gets mad easily?
17. Who are the ones that are mean and cruel to other children?

#### WITHDRAWN MALADJUSTMENT

3. Who stays out of games; they don't like to play hard?
8. Who is too shy to make friends easily? It's hard to get to know them.
11. Who doesn't like it when the teacher asks him or her to say something?
13. Who don't you see much? You don't notice whether they are with you or not?
14. Who is afraid to take chances?

#### PRACTICAL INTELLIGENCE

5. Who in the class seems to understand things most easily, the best?
10. Who is very smart at games and other things? They have a lot of good ideas.

#### HYPERACTIVITY ITEM

18. Who moves around a lot in class, always out of his or her seat?

#### FRIENDSHIP ITEM

19. Who is your best friend in class? Who do you like best?

#### NEGATIVE FRIENDSHIP ITEM

20. Who don't you like for your friends in class?



## BIBLIOGRAPHY

- Alberman, E. The early prediction of learning disorders. Develop. Med. Child Neurol., 1973, 15, 202-203.
- Alley, G., Solomons, G., & Opitz, E. Minimal cerebral dysfunction as it relates to social class. J. Learning Disabilities, 1971, 4, 246-250.
- Anderson, I.H., Hughes, B.O., & Dixon, W.R. Age of learning to read and its relation to sex, intelligence, and reading achievement in the sixth grade. Journal of Educational Research, 1956, 49.
- Anderson, T.W. An introduction to multivariate statistical analysis. New York: John Wiley and Sons, Inc., 1958.
- Anthony, E.J. A psychodynamic model of minimal brain dysfunction. Annals New York Academy of Sciences, 1973, 205, 52-61.
- Anthony, E.J. (Ed.). Explorations in child psychiatry. New York: Plenum Press, 1975.
- Arnold, E.E. The art of medicating hyperkenetic children. Clinical Pediatrics, 1973, 12, 35-41.
- Asch, H., & Snyder, E. The development of new approaches in the diagnosis and treatment of the learning disabled child. In E.G. Scagliotta (Ed.), Symposium 1973. New Jersey: Rutgers University, 1973.
- Auerbach, A.G. The social control of learning disabilities. J. Learning Disabilities, 1971, 4, 221-223.
- Bakwin, H. Reading disability in twins. Develop. Med. Child Neurol., 1973, 15, 184-187.
- Balow, I.H. Sex differences in first grade reading. Elementary English, 1963, 40, 303-320.
- Barsch, R.H. Counseling the parent of the brain-damaged child. J. Rehabilitation, 1961, May-June.

- Bateman, B.D. Three approaches to diagnosis and educational planning for children with learning disabilities. Academic Therapy, Winter 1966-67, 2, 215-222.
- Bateman, B.D. Learning disabilities--yesterday, today and tomorrow. In E.C. Frierson & W.B. Barbe (Eds.), Educating children with learning disabilities. New York: Appleton-Century-Crofts, 1967.
- Bateman, B.D. Educational implications of minimal brain dysfunction. Annals New York Academy of Sciences, 1973, 205, 245-251.
- Benton, A.L. Minimal brain dysfunction from a neuropsychological point of view. Annals New York Academy of Sciences, 1973, 205, 29-37.
- Berlin, I.N. Minimal brain dysfunction: Management of family distress. JAMA, 1974, 229, 1454-1456.
- Birch, H.G. (Ed.). Brain damage in children. Baltimore: Williams and Wilkins, Co., 1964.
- Blom, G. Sex differences in reading disability. In E. Calkins (Ed.), Reading forum: A collection of reference papers concerned with reading disability. NINDS Monograph No. 11, U.S. Department of Health, Education and Welfare, 1971.
- Bowman, P.H., DeHaan, R.F., Kough, J.K., & Liddle, G.P. Nobilizing community resources for youth. Supplementary Educational Monographs, No. 85, University of Chicago Press, 1956.
- Braud, L.W., Mim, N.L., & Braud, W.G. The use of electromyographic biofeedback in the control of hyperactivity. J. Learning Disabilities, 1975, 8, 420-445.
- Brophy, J.E., & Good, T.L. Teacher-student relationships. New York: Holt, Rinehart and Winston, Inc., 1974.
- Bryan, T.H. An observational analysis of classroom behaviors of children with learning disabilities. J. Learning Disabilities, 1974 a, 7, 26-34.
- Bryan, T.H. Peer popularity of learning disabled children. J. Learning Disabilities, 1974 b, 7, 621-625.

- Bryan, T.H. Peer popularity of learning disabled children: A replication. J. Learning Disabilities, 1976, 9, 307-311.
- Bryan, T.H., & Wheeler, R. Perception of learning disabled children: The eye of the observer. J. Learning Disabilities, 1972, 5, 484-488.
- Bryan, T.S., & McGrady, H.J. Use of a teacher rating scale. J. Learning Disabilities, 1972, 5, 199.
- Cantwell, D.P. (Ed.). The hyperactive child. New York: Spectrum Publications, Inc., 1975.
- Chalfant, J.C., & Scheffelin, M.A. (Eds.). Central processing dysfunctions in children: A review of research. NINDS Monograph No. 9, U.S. Department of Health, Education and Welfare, 1969.
- Clements, S.D. Task force I: Minimal brain dysfunction in children. NINDS Monograph No. 3, U.S. Department of Health, Education and Welfare, 1966.
- Clements, S.D., & Peters, J.E. Minimal brain dysfunctions in the school-age child. In E.C. Frierson & W.B. Barbe (Eds.), Educating children with learning disabilities. New York: Appleton-Century-Crofts, 1967.
- Cohen, S.A. Minimal brain dysfunction and practical matters such as teaching kids to read. Annals New York Academy of Sciences, 1973, 205, 251-261.
- Connors, C.K., Eisenberg, L., & Barcai, A. Effect of extro-amphetamine on children. Arch. Gen. Psychiat., 1967, 17, 478-485.
- Coopersmith, S. The antecedents of self-esteem. San Francisco: W.H. Freeman and Company, 1967.
- Critchley, M. Developmental dyslexia. London: William Heinemann, 1964.
- Critchley, M. The dyslexic child. Springfield, Illinois: Charles C. Thomas, 1970.
- Cruickshank, W.M. (Ed.). The teacher of brain-injured children. Syracuse: Syracuse University Press, 1966.
- Cruickshank, W.M. The brain-injured child in home, school and community. Syracuse: Syracuse University Press, 1967.

- Cruickshank, W.M., Bentzen, F.A., Ratzenberg, F.H., & Tannhauser, M.T. A teaching method for brain-injured and hyperactive children. Syracuse: Syracuse University Press, 1961.
- de Hirsch, K., Jansky, J.J., & Langford, W.S. Predicting reading failure. New York: Harper and Row, 1966.
- Delacato, C.H. The treatment and prevention of reading problems. Springfield, Illinois: Charles C. Thomas, 1959.
- Delacato, C.H. The diagnosis and treatment of speech and reading problems. Springfield, Illinois: C. C. Thomas, 1963.
- DeLaCruz, F.F., Fox, B.H., & Roberts, R.H. (Eds.). Minimal brain dysfunction. Annals New York Academy of Sciences, 1973, 205.
- Denckla, M.B. Neurological evaluation of children with learning disabilities: Clinical research and practice. In E.G. Scagliotta (Ed.), Symposium 1973. New Jersey: Rutgers University, 1973.
- Douglas, V.I. Sustained attention and impulse control: Implications for the handicapped child. Psychology and the handicapped child. Office of Education, HEW, 1974.
- Dykman, R.A., Peters, J.E., & Ackerman, P.T. Experimental approaches to the study of minimal brain dysfunction: A follow-up study. Annals New York Academy of Sciences, 1973, 205, 93-108.
- Dykstra, R. Continuation of the coordinating center for first grade reading instruction programs. Office of Education, Bureau of Research, Final Report, Project No. 6-1651, HEW, Sept., 1967.
- Eisenberg, L., Gilbert A., Cytryn, L., & Molling, P.A. The effectiveness of psychotherapy alone and in conjunction with perphenazine or placebo in the treatment of neurotic and hyperkinetic children. Am. J. Psychiatry, 1961, 117, 1088-1093.
- Felsenthal, H. Sex differences in teacher-pupil interaction in first grade reading instruction. Paper presented at the Convention of the American Educational Research Association, Minneapolis, Minnesota, March 1970. ERIC ED 039 106.

- Fish, B. Stimulant drug treatment of hyperactive children. In D. Cantwell (Ed.), The hyperactive child. New York: Spectrum Publications, Inc.
- Friedman, R., Davis, E.P., & Wagner, J.H. A long-term comparison of two treatment regimens for minimal brain dysfunction. Clinical Pediatrics, 1973, 12, 666-671.
- Frierson, E.C., & Barbe, W.B. Educating children with learning disabilities. New York: Appleton-Century-Crofts, 1967.
- Frostig, M. Developmental evaluation and the institution of remedial programs for children with learning difficulties. Academic Therapy, 1967, 2, 76-88.
- Gardner, R. Techniques for involving the child with MBD in meaningful psychotherapy. J. Learning Disabilities, 1975, 8, 16-26.
- Garrard, S.D. Role of the pediatrician in the management of learning disorders. Pediatric Clinics of North America, 1973, 20, 737-754.
- Garry, R. Guidance techniques for elementary teachers: The guess-who technique. Columbus, Ohio: Charles Merrill, 1963.
- Gates, A. Sex differences in reading ability. Elementary School Journal, 1961, 61, 431-434.
- Glick, O. Some social-emotional consequences of early inadequate acquisition of reading skills. J. Educational Psychology, 1972, 63, 253-257.
- Goldstein, K. Language and language disturbances. New York: Grune and Stratton, 1948.
- Gomez, M.R. Minimal cerebral dysfunction--maximal cerebral confusion. Clin. Pediat., 1967, 6, 589-591.
- Good, T.L., & Brophy, J.E. Do boys and girls receive equal opportunity in first grade reading instruction? Washington, D.C.: Department of HEW, Office of Education, Bureau of Research, September 1969. ERIC ED 041 848.
- Gordon, I.J. On early learning: The modifiability of human potential. In P. Satz & J.J. Ross (Eds.), The disabled learner. Rotterdam, The Netherlands: Rotterdam University Press, 1973.

- Gray, W.S. Diagnostic and remedial steps in reading. J. Educ. Res., 1921, 4, 1-15.
- Greyton, G. Some aspects of the social adjustment of the elementary school child with learning disabilities. Fund for Perceptually Handicapped Children, October 1970.
- Gronlund, N.E. Sociometry in the classroom. New York: Harper and Brothers, 1959.
- Gross, M., & Wilson, W.C. Minimal brain dysfunction. New York: Brunner/Mazel, 1974.
- Hagin, R.A., Silver, A.A., & Corwin, C.G. Clinical-diagnostic use of the WPPSI in predicting learning disabilities in grade 1. J. Special Education, 1971, 5, 221-232.
- Harsteen, J. Current concepts in dyslexia. St. Louis, Missouri: C. V. Mosby, Co., 1971.
- Henderson, E.H., Long, B.H., & Ziller, R.C. Self-social constructs of achieving and nonachieving readers. The Reading Teacher, 1965, 114-118.
- Howell, M.C., Rever, G.W., & Scholl, M.L. Hyperactivity in children. Clinical Pediatrics, 1972, 11, 30-39.
- Johnson, D. An investigation of sex differences in reading in 4 English-speaking nations. Technical Report #209 Research and Development Center for Cognitive Learning, University of Wisconsin, 1972.
- Kagan, J. The child's sex role classification of school objects. Child Development, 1964, 35, 1051-1056.
- Kappelman, M.M., Rosenstein, A.B., & Ganter, R.L. Comparison of disadvantaged children with learning disabilities and their successful peer group. Amer. J. Dis. Child, 1972, 124, 875-879.
- Keogh, B.K. Hyperactivity and learning disorders: Review and speculation. Exceptional Children, 1971, 38, 101-109.
- Keogh, B.K., & Smith, C.E. Visual-motor ability for school prediction: A seven-year study. Percept. Motor Skills, 1967, 25, 101-110.

- Keogh, B.K., Tchir, C., & Windeguth-Behn, A. Teacher's perceptions of educationally high risk children. J. Learning Disabilities, 1974, 7, 43-50.
- Kephart, N.C. The slow learner in the classroom. Columbus, Ohio: Merrill Books, 1960.
- Kernkamp, E., & Puci, E. Coeducation may be a no-no for the six year old boy. Phi Delta Kappan, 1972, 53, 662-663.
- Kinsbourne, M. Minimal brain dysfunction as a neurodevelopmental lag. Annals New York Academy of Sciences, 1973, 205, 269-274.
- Kirk, S.A. Educating exceptional children. Boston: Houghton Mifflin Co., 1962.
- Kirk, S.A., & Bateman, B. Diagnosis and remediation of learning disabilities. Exceptional Children, 1962, 29, 73-78.
- Larsen, S.C., Parker, R., & Jorjorian, S. Differences in self-concept of normal and learning disabled children. Perceptual and Motor Skills, 1973, 37, 510.
- Laufer, M.W. In Osler's day it was syphilis. In E.J. Anthony (Ed.), Explorations in child psychiatry. New York: Plenum Press, 1975.
- LeWinn, E.B., Doman, G., Doman, R., Delacato, C., Spitz, E., & Thomas, E. Neurological organization: The basis for learning. In J. Hellmuth (Ed.), Learning disorders, Volume II. Seattle, Washington: Special Child Publications, 1966.
- Loney, J. The intellectual functioning of hyperactive elementary school boys--a cross-sectional investigation. Am. J. Ortho., 1974, 5, 754-761.
- Lovitt, T.C. Self-management projects with children with behavioral disabilities. J. Learning Disabilities, 1973, 6, 138-150.
- Lyles, T. Grouping by sex. The National Elementary School Principal, 1966, 46, 38-41.
- Machanick, S. The management of a child with a learning disability. S. Afr. Med. J., 1974, 48, 753-756.

- Mazurkiewicz, A.J. Social-cultural influences and reading. J. Developmental Reading, 1960, 3, 254-263.
- McCracken, J. Sex typing of reading by boys attending all male classes. Develop. Psychology, 1973, 8, 148.
- McNeil, J. Programmed instruction vs. usual classroom procedures in teaching boys to read. Am. Educ. Research Journal, 1964, 1, 113-119.
- Meier, J.H. Learning disabilities found in elementary schools. In P. Satz & J.J. Ross (Eds.), The disabled learner. Rotterdam, The Netherlands: Rotterdam University Press, 1973.
- Mendelson, W., Johnson, J., & Stewart, M. Hyperactive children as teenagers, a follow-up study. J. Nerv. Ment. Disorders, 1971, 153, 273-279.
- Menkes, M.M., Rowe, J.S., & Menkes, J.H. A 25-year follow-up study on the hyperkinetic child with minimal brain dysfunction. Pediatrics, 1967, 39, 393-399.
- Miller, D., & Westman, J.C. Reading disability as a condition of family stability. Family Process, 1964, 3, 66-76.
- Millichap, J.G. Drugs in management of minimal brain dysfunction. Annals New York Academy of Sciences, 1973, 205, 321-334.
- Minde, K., Weiss, G., & Mendelson, N. 5 year follow-up study of 91 hyperactive school children. J. Am. Academy of Child Psychiatry, 1972, 11, 595.
- Mitchell, J.V., Jr. The factor analysis of a 'guess-who' questionnaire designed to identify significant behavior patterns in children. J. Personality, 1956, 24, 376-386.
- Money, J. (Ed.). Reading disability progress and research needs in dyslexia. Baltimore: Johns Hopkins Press, 1962.
- Moore, S., & Updegraff, R. Sociometric status of preschool children related to age, sex, nurturance-giving and dependency. Child Development, 1964, 35, 519-524.
- Myklebust, H.R. (Ed.). Progress in learning disabilities, volume 1. New York: Grune and Stratton, 1968.



- Naidoo, S. Specific dyslexia. Bath, Great Britain: Pitman Press, 1972.
- Orton, S.T. Specific reading disability--Strephosymbolia. JAMA, 1928, 90, 1095-1099.
- Orton, S.T. Reading, writing, and speech problems in children. New York: Norton, 1937.
- Owen, F.W., Adams, P.A., Forrest, T., Stolz, L.M., & Fisher, S. Learning disorders in children: Sibling studies. Monographs of the Society for Research in Child Development, 1971, 36 (4, Serial No. 144).
- Palardy, J. What teachers believe--what children achieve. Elem. School Journal, 1969, 69, 370-374.
- Peck, R. A cross-national comparison of sex and SES differences in aptitude and achievement. Paper presented at annual meeting of American Educational Research Association, 1971.
- Penfield, W., & Roberts, L. Speech and brain mechanisms. Princeton, N.J.: Princeton University Press, 1959.
- Peters, J.E., Davis, J.S., Goolsby, C.M., & Clements, S.D. Physician's handbook, screening for MBD. CIBA Medical Horizons, 1973.
- Preston, R. Reading achievement of German and American children. School and Society, 1962, 90, 350-354.
- Price, E., & Rosemeier, R. Some cognitive and affective outcomes of same-sex versus co-educational grouping in first grade. J. Exper. Educ., 1972, 40, 70-77.
- Quay, H.C., & Werry, J.S. (Eds.). Psychopathological disorders of childhood. New York: John Wiley and Sons, Inc., 1972.
- Rawson, M.B. Developmental language disability. Baltimore: Johns Hopkins Press, 1968.
- Renshaw, D.C. The hyperactive child. Chicago: Nelson-Hall, 1974.
- Richardson, S.O. Learning disabilities--an introduction. International approach to learning disabilities of children and youth. Tulsa: The Association for Children with Learning Disabilities, 1967.

- Ring, A. First grade boys will be boys. The Instructor, 1970, 80, 51.
- Rubin, R., & Balow, B. A comparison of pre-kindergarten and pre-1st-grade boys and girls on measures of school readiness and language development. An Interim Report Project No. 6-1176, U.S. Department of HEW, Office of Education, Bureau of Research, August 1968. ERIC ED 023 474.
- Rutter, M., Graham, P., & Yule, W. A neuropsychiatric study in childhood. Clinics in Developmental Medicine Nos. 35/36. Philadelphia: Lippincott Co., 1970.
- Safer, D.J. A familiar factor in minimal brain dysfunction. Behavior Genetics, 1973, 3, 175-185.
- Samuels, F. Sex differences in reading achievement. Journal of Educational Research, 1943, 36, 594-603.
- Satterfield, J.H. Neurophysiologic studies with hyperactive children. In D.P. Cantwell (Ed.), The hyperactive child. New York: Spectrum Publications, 1975.
- Satz, P., & Friel, J. Some predictive antecedents of specific learning disability: A preliminary one-year follow-up. In P. Satz & J.J. Ross (Eds.), The disabled learner. Rotterdam, The Netherlands: Rotterdam University Press, 1973.
- Satz, P., & Friel, J. Some predictive antecedents of specific reading disability: A preliminary two-year follow-up. J. Learning Disabilities, 1974, 7, 437-444.
- Satz, P., & Sparrow, S. Specific developmental dyslexia: A theoretical formulation. In D.J. Bakker & P. Satz (Eds.), Specific reading disability. Rotterdam, The Netherlands: Rotterdam University Press, 1970.
- Satz, P., Friel, J., & Rudegeair, F. Differential changes in the acquisition of developmental skills in children who later become dyslexic: A three-year follow-up. In D. Stein, J. Rosen, & N. Butters (Eds.), Plasticity and recovery of function in the central nervous system. New York: Academic Press, 1974.
- Schain, R.J. Neurology of childhood learning disorders. Baltimore: Williams and Wilkins, Co., 1972.
- Schnackenberg, R.C. Caffeine as a substitute for schedule II stimulants in hyperkinetic children. Am. J. of Psychiatry, 1973, 130, 796-798.

- Sechzer, J.A., Faro, M.D., & Windle, W.F. Studies of monkeys asphyxiated at birth: Implications for minimal cerebral dysfunction. Am. Prog. in Child Psychiatry and Child Development, 1974.
- Shaffer, D. Psychiatric aspects of brain injury in childhood. Annual Progress in Child Psychiatry and Development, 1974, 263.
- Shuster, J. Personal Communication, 1976.
- Silver, L.B. A proposed view on the etiology of the neurological learning disability syndrome. J. Learning Disabilities, 1971, 4, 123-133.
- Slater, B.R. Achievement in grade 3 by children who participated in perceptual training during kindergarten. Perceptual and Motor Skills, 1973, 36, 763-766.
- Smith, D.E.P., & Carrigan, P.M. The nature of reading disability. New York: Harcourt, Brace and Co., 1959.
- Sprague, R.L. Minimal brain dysfunction from a behavioral viewpoint. Annals New York Academy of Sciences, 1973, 205, 349-361.
- Stawar, T.L., & Lamp, R.E. IES test performance by learning disabled boys. Perceptual and Motor Skills, 1974, 38, 695-699.
- Stevens, G.D., & Birch, J.W. A proposal for clarification of the terminology used to describe brain-injured children. In E.C. Frierson & W.B. Barbe (Eds.), Educating children with learning disabilities. New York: Appleton-Century-Crofts, 1967.
- Stewart, M.A., Palkes, H., Miller, R., Young, C., & Welner, Z. Intellectual ability and school achievement of hyperactive children, their classmates, and their siblings. In D.F. Ricks, A. Thomas, & M. Roff (Eds.), Life history research in psychopathology, volume 3. Minneapolis, Minnesota: University of Minnesota Press, 1974.
- Strauss, A.A., & Lehtinen, L.E. Psychopathology and education of the brain-injured child. New York: Grune and Stratton, 1947.
- Strickler, R., & Phillips, C. Kindergarten success story. The Instructor, 1970, 80, 50-51.

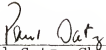
- Strother, C.R. Minimal cerebral dysfunction: A historical overview. Annals of the New York Academy of Sciences, 1973, 205, 6-17.
- Tagatz, G. Grouping by sex at the first and second grade. J. Educ. Research, 1966, 59, 415-418.
- Taylor, E.M. Psychological appraisal of children with cerebral defects. Cambridge, Massachusetts: Harvard University Press, 1959.
- Thomas, E.W., & LeWinn, E.B. Brain-injured children. Springfield, Illinois: Charles C. Thomas, 1969.
- Thompson, L.J. Reading disability: Developmental dyslexia. Springfield, Illinois: Charles C. Thomas, 1966.
- Van de Geer, J.P. Introduction to multivariate analysis for the social sciences. San Francisco: W.H. Freeman and Co., 1971.
- Walzer, S., & Wolff, P.H. (Eds.). Minimal cerebral dysfunction in children. New York: Grune and Stratton, 1973.
- Weisman, E.A. A multidiscipline approach to the development of reading skills. Child Welfare, 1973, 52, 305-312.
- Weiss, G., Minde, K., Werry, J.S., Douglas, V.I., & Nemeth, E. Studies on the hyperactive child: Five-year follow-up. Arch. Gen. Psychiat., 1971, 24, 409-414.
- Weiss, G., Werry, J.S., Minde, K.K., Douglas, V.I., & Sykes, D.H. Studies on the hyperactive child. V. The effects of dextramphetamine and chlorpromazine on behavior and intellectual functioning. J. Child Psychol. Psychiat., 1968, 9, 145-156.
- Wender, P.H. MBD in children. New York: Wiley Interscience, 1971.
- Wender, P.H. Minimal brain dysfunction in children. Pediatric Clinics of North America, 1973 a, 20, 187-202.
- Wender, P.H. Some speculations concerning a possible biochemical basis of MBD. Annals of New York Academy of Sciences, 1973 b, 205.

- Werry, J.S., & Quay, H.C. The prevalence of behavior symptoms in younger elementary school children. Am. J. Ortho., 1971, 41, 136-143.
- Wesman, J.M. The interrelationships of hearing, speech, and reading. The Reading Teacher, 1961, 14, 245-247.
- Whiting, B., & Edwards, C.P. A cross-cultural analysis of sex differences in the behavior of children aged 3-11. APCP & CD, 1974.
- Willerman, L. Social aspects of MBD. Annals of New York Academy of Sciences, 1973, 205.
- Wolfik, D. Minimal brain dysfunction--an approach to treatment. Med. J. Aust., 1973, 2, 601-605.
- Work, H.H., & Haldane, J.E. Cerebral dysfunction in children. Am. J. Dis. Child, 1966, 111, 573.
- Yeatts, P.P., & Bentley, E.L., Jr. I feel...me feel--self-concept appraisal. Gainesville, Florida: Florida Educational Research Development Council, 1970.
- Yeatts, P.P., & Bentley, E.L., Jr. The development of a non-verbal measure to assess the self-concept of young and low verbal children. Paper presented at the American Educational Research Association, New York, February 1971.
- Zedler, E.Y. A screening scale for children with high risk of neurological impairment. In International approach to learning disabilities of children and youth. Tulsa, Oklahoma: Association for Children and Youth, 1967.

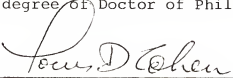
## BIOGRAPHICAL SKETCH

Susan Jane Doherty Isaacson was born in Ft. Wayne, Indiana, on January 17, 1937. She lived in Battle Creek, Michigan; Columbus, Ohio; Philadelphia, Pennsylvania; Maplewood, New Jersey; Syracuse, New York; and Birmingham, Michigan, and was graduated from Birmingham High School in 1954. She attended the University of Michigan, receiving the Bachelor of Arts degree in 1959 with a major in English and a Secondary Teaching Certificate. She attended the Rackham School of Graduate Studies, University of Michigan, from 1964-1968 and received the Master of Arts degree in Psychology in 1968. During the years 1966-1968 she completed an internship in clinical psychology at the University of Michigan, training at the Children's Psychiatric Hospital and the Psychological Clinic. From 1971-1976, she attended the University of Florida and received the Ph.D. degree in psychology (clinical) in December, 1976. She has four children: Gunnar John Isaacson, Lars Robert Isaacson, Mary-Ingrid Isaacson, and Mary-Christina Isaacson.

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

  
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Paul Satz, Chairman  
Professor of Clinical Psychology

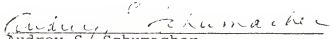
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Louis D. Cohen  
Professor of Clinical Psychology

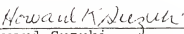
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\_\_\_\_\_  
Jacquelin Goldman  
Professor of Clinical Psychology


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Audrey S. Schumacher  
Professor Emeritus of Psychology

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

  
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Professor of Anatomy and  
Dean, Health Related Professions

I certify that I have read this study and that in my opinion it conforms to acceptable standards of scholarly presentation and is fully adequate, in scope and quality, as a dissertation for the degree of Doctor of Philosophy.

  
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This dissertation was submitted to the Graduate Faculty of the Department of Clinical Psychology in the College of Arts and Sciences and to the Graduate Council, and was accepted as partial fulfillment of the requirements for the degree of Doctor of Philosophy.

December, 1976

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Dean, Graduate School